PULP & PAPER

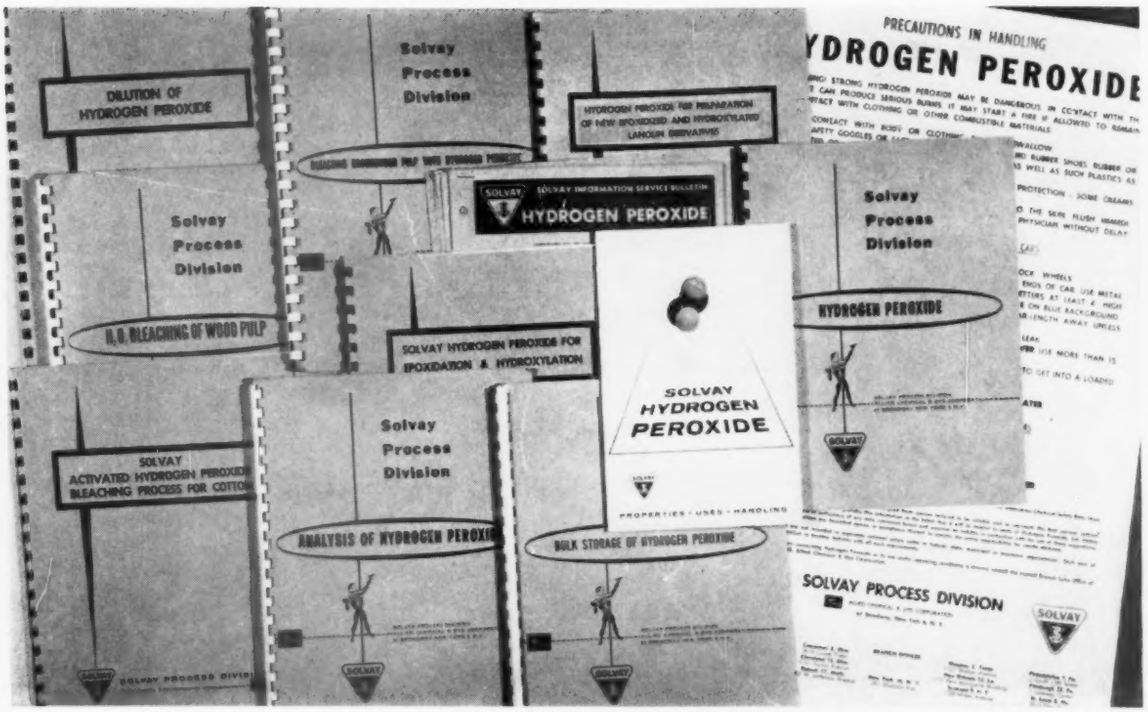
MARCH 1958

Normalcy Here, Montreal Hears
page 55

Magnefite Pulp "Sensation"
page 58

Pulpwood Talks in South
page 128

1,000 Tons per Day... see story, page 70



AVAILABLE TO YOU – TECHNICAL DATA ON SOLVAY HYDROGEN PEROXIDE

To help you in your current operations–here is authoritative information on the analysis, uses, handling and storage of SOLVAY Hydrogen Peroxide. These booklets, bulletins and the wall precaution chart have been compiled from accepted sources, from SOLVAY's own research and from 77 years of field experience with chemical consumers in virtually every industrial category. Check the contents of the individual items–then check those that may be helpful to you on the coupon and mail.

HP-1–Solvay Hydrogen Peroxide: Physical properties, chemical reactions, shipping containers, handling, storage. 21 pages.

HP-2–Wall Chart: Precautions for handling hydrogen peroxide.

HP-6–Hydrogen Peroxide Bleaching of Wood Pulp: Applications and methods. 28 pages.

HP-7–Hydrogen Peroxide Bleaching of Groundwood Pulp: Chemicals used, analytical methods, bleaching operations. 15 pages.

HP-9–Hydrogen Peroxide Bulk Storage: Bulk shipping and storage equipment, equipment suppliers. 13 pages.

HP-10–Analysis of Hydrogen Peroxide: Analytical methods, reagents, indicators, standard solutions. 31 pages.

HP-13–Solvay Hydrogen Peroxide for Epoxidation & Hydroxylation: Up-to-date review and bibliography, methods, olefins used, present and potential uses of products. 8 pages.

HP-14–Solvay Activated Hydrogen Peroxide Bleaching Process for Cotton: Process description, operation details, commercial applications, cost and quality comparison. 7 pages.

HP-15–Dilution of Hydrogen Peroxide: How to dilute accurately, equipment and materials needed. 9 pages.

HP-16–Hydrogen Peroxide: Up-to-date review of properties, stabilization, manufacturing methods, purification and concentration (prepared on request for new issue of Encyclopedia of Chemical Technology). 20 pages.

HP-17–Hydrogen Peroxide for Preparation of New Epoxidized and Hydroxylated Lanolin Derivatives: Study of preparation methods and determination of reaction products' characteristics. 8 pages.

NO. 1-56–Information Service Bulletin: Directions and equipment for emptying drums of hydrogen peroxide.

NO. 8-1057–Information Service Bulletin: Directions for unloading tank cars of hydrogen peroxide.

NO. 6-56–Information Service Bulletin: Hydrogen peroxide in oxidation of vat dyes.

NO. 2-57–Information Service Bulletin: Hydrogen peroxide in finishing electroplated surfaces.

NO. 6-657–Information Service Bulletin: Hydrogen peroxide in foam rubber manufacture.

NO. 4-57–Information Service Bulletin: Hydrogen peroxide in shellac bleaching.

NO. 7-957 and NO. 9-1157–Information Service Bulletins: Hydrogen peroxide in wood bleaching.

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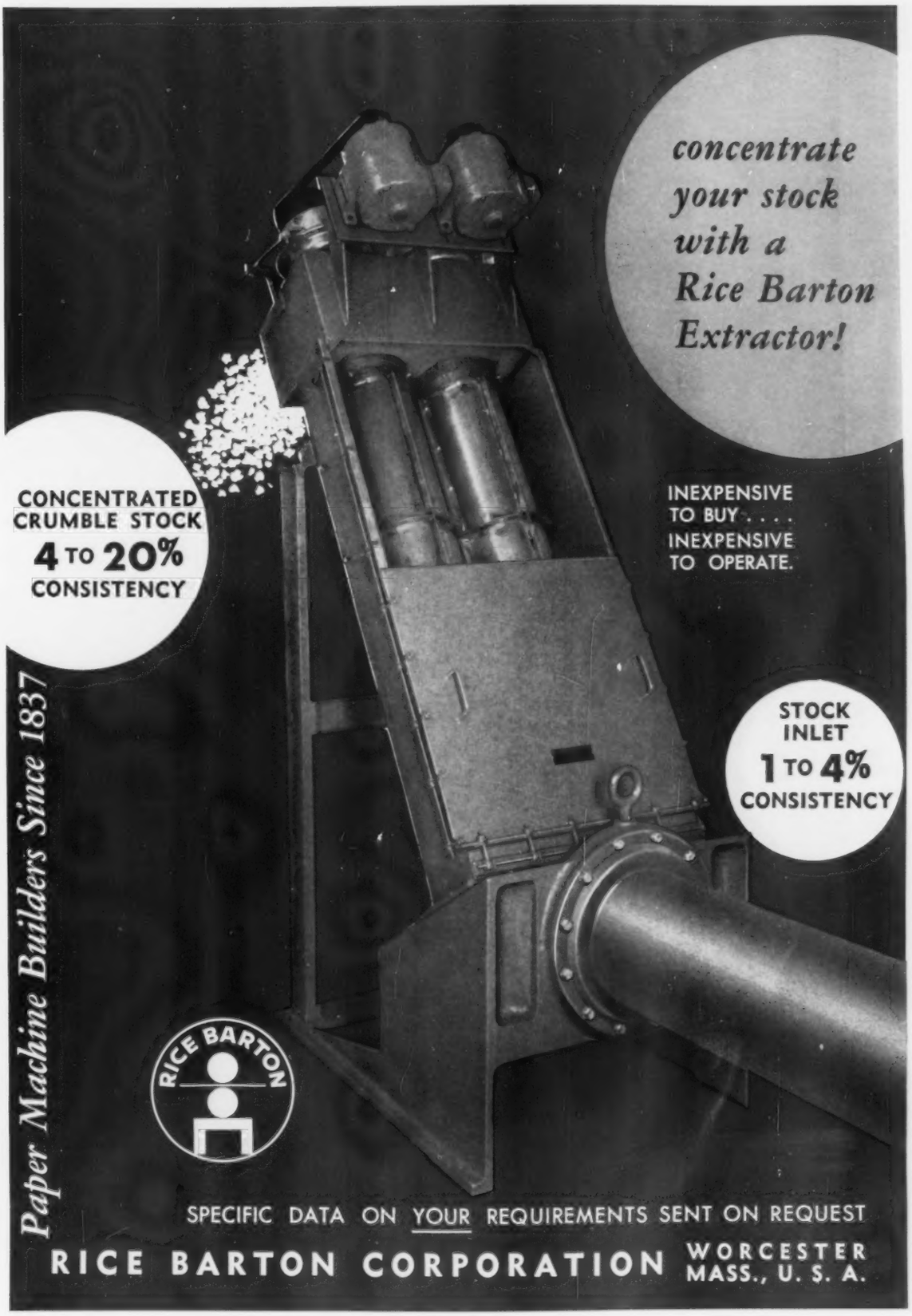
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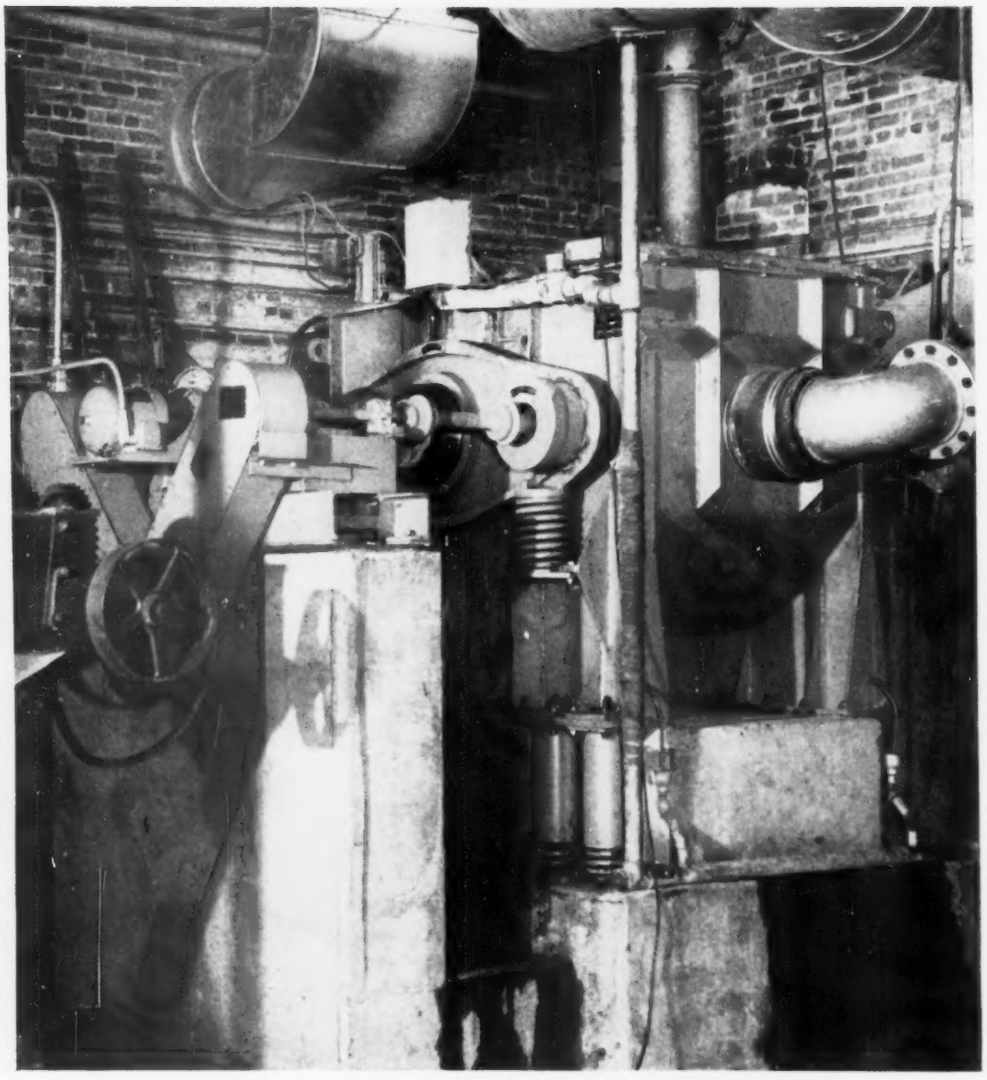

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PULP & PAPER

Reader's Guided Tour

VOLUME 32
NUMBER 3

Report on CPPA Meeting at Montreal 55

Chlorine Dioxide Bleaching at Howard Smith 60

A New Product: Stretchable Paper 64

Kalamazoo Conferences Discuss New Pulp Processes 66

1,000 Tons Per Day at St. Regis "Jax" 70

Combustion Authorities Speak at Everett 81

Permanent Paper Exhibit in Philadelphia 82

Knowlton Marks 100 Years of Pioneering 82

The "Brewtonian" Starts up in Alabama 83

New Safety Record Set on West Coast 83

CZ Camas Ships Pulp Economically by Rail 83

● PULPWOOD SECTION

How Forestry Boosts Dixie Progress 128

How St. Regis Meets Demand for Four Times the Wood 130

Dependable Source of Chips for Longview 132

Where Powell River Uses Industrial TV 133

Latest View of Ickes' "Vanishing Forest" 134

● OTHER DEPARTMENTS

The Editor Reads His Mail 5

Monthly Report 7

World Pulp and Paper News 13

Strictly Personal—news of people 141

New Equipment and Supplies 154

The Last Word—P&P Editorial Views 170

Washington state says "Keep Out"; Closer ties in Montreal

Important Developments at Montreal 55

CPPA President Fowler says industry will keep growing; David Luke, for U.S. industry, calls for Canadians to join in world leadership for this industry; first unveiling of Magnefite pulping process and paper on Arbiso process are pioneering developments

Now Soda Pulp is Given ClO_2 Bleach 60

Howard Smith Paper Mills plant pioneers chlorine dioxide bleaching of soda pulps—chemical tests maintain control, and keep plant going

New Facts about New Pulping Processes 66

Western Michigan University is host for conference which brings reports on cold soda pulping of oak. Comments on Zimmerman vs. Mead semichem recovery systems

How Forestry Boosts Dixie Progress 128

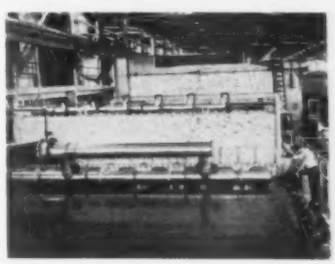
Impressive record of industry's growth in South stimulates Atlanta meeting of Southern Pulpwood Conservation Assn., need to combat hardwood replacement of pine pointed out

Big New Seminole Chief of Jacksonville 70

Unusual picture story of this giant machine built by St. Regis which produces 1,000 tons of board in one day. What was needed to back up this machine in auxiliaries and refining, new concept in roll handling, etc.

COVER PICTURE

With this one gigantic 276-in. machine, St. Regis has more than quadrupled production at Jacksonville.



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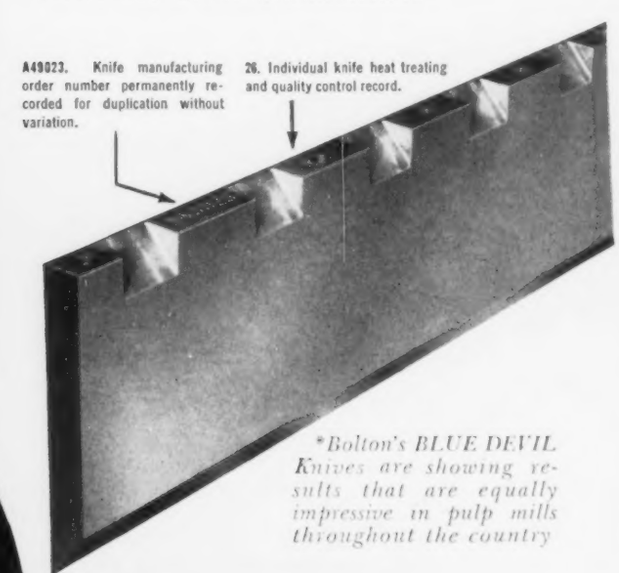
A49023. Knife manufacturing order number permanently recorded for duplication without variation.
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THE EDITOR READS HIS MAIL

Address letters to The Editor, PULP & PAPER, 1791 Howard St., Chicago 26, Ill.

Foresters Interested In College Recruiting Article

—Denver, Colo.

Editor: We are very interested in the article "What the Panel Says" (a panel of college placement officers and other experts told PULP & PAPER readers what is wrong and what is right in recruiting of college students for industry jobs) in the Oct. 1957 issue of PULP & PAPER.

We would like very much to have another copy.

E. M. KARGER
Assistant Regional Forester
U.S. Forest Service

Brauns Busy in Japan

—Nishinomiya, Japan

Editor: My wife and I are thoroughly enjoying our life in Japan and as soon as I finish most of the work I am doing —including the completion of a supplement to my book, "The Chemistry of Lignin," with, I hope, thorough coverage of the Japanese literature through the help of Japanese chemists —I am sure we will enjoy it even more.

I have been to a number of industrial, university, and government research laboratories for wood, pulp and paper and expect to visit a good many more during the latter part of March. I also hope to complete the supplement to my book before the summer.

F. E. BRAUNS
(formerly of Institute & Paper Chemistry)

Even Safety Mgr. Isn't Safe; National Chairman Breaks Leg

—Chicago

Editor: This accident of mine illustrates beautifully the theme of the United States Steel's recent safety campaign that achieved so much for them, 'Knowing Is Not Enough.'

"If you have ever seen a peeling or cutting operation in a carton plant, you will note that there is an inherent slip hazard caused by collection of scrap around the floor by peeling stations. This slip hazard is emphasized when varnish or wax is used in the printing room.

I had shuffled through a couple inches of scrap to talk to a man at a peeling station. You minimize the hazard if you shuffle through, as your feet are on the floor. I finished my conversation with him and wanted to talk to a man about six or seven feet to his left. I pivoted on my left foot, stepped out with the right, completely forgetting the slippery medium upon which I stood. As the heel of my right foot came down on some of the slippery scrap my foot shot out from under me, and I was thrown to the floor. In flying through the air my body and leg twisted; my leg snapped before I struck the floor. So, in this case, knowing certainly was not enough. What I needed was that constant awareness of the hazards about me.

EARL RIPSTRA
Safety Mgr., Container Corp. of America,
Chicago 35th St. Plant,
and Chairman, Pulp and Paper Section, National Safety Council.

News from Bill Converse

Greywalls, Ruxley Crescent,
Claygate, Surrey, Eng.

Editor: Here's where our family will be living until July. We enjoyed a quick trip through eight European countries last year. Highlights to always remember were Grenoble, Sestriere in the Italian Alps, Switzerland, Lichtenstein and the "picture book" Austrian Tyrol. We were permitted visas to cross Yugoslavia—a most interesting experience. This country has some surprisingly beautiful countryside. Best wishes to our friends in the United States and Canada.

BILL CONVERSE
Co-Managing Director, Black Clawson International Ltd. (London).

British Book a Classic

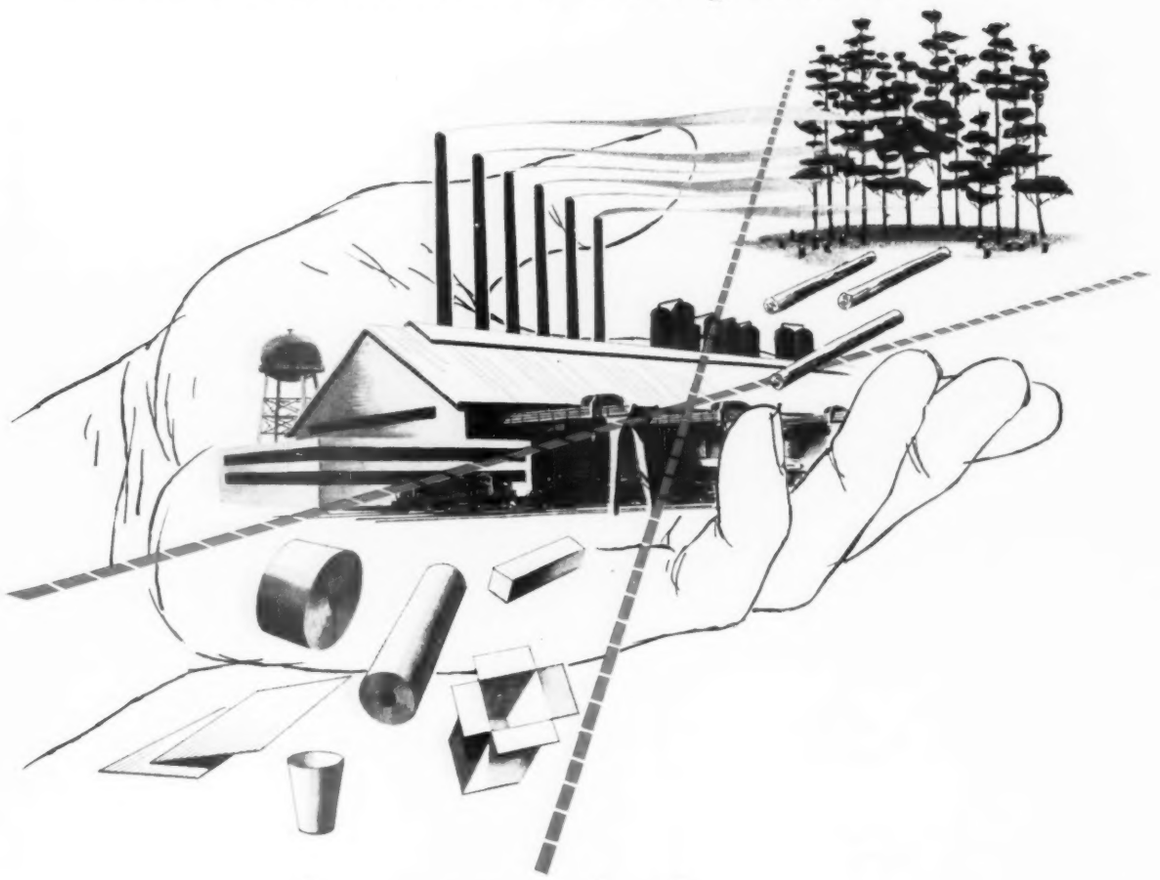
—Montreal

Editor: A beautifully done book and a very important one has been produced by the British Paper and Board Makers' Association—"Fundamentals of the Beating Process" by Emerton, head of physics research for the association. This book will be a classic for many years in this industry. It contains the most beautiful collection of photomicrographs imaginable.

W. BOYD CAMPBELL
(formerly with Pulp and Paper Research Institute of Canada)

(Eds. note: Address of the British association is Melbourne House, Aldwich, London W. C. 2, Eng.)

When Gottesman enters the picture...



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PULP & PAPER # Monthly Report ... of significant news and views

General Outlook . . .

U. S. RECORD IN 1958 PREDICTED. . . . United States production of paper and board in 1958 is expected to establish an all-time high of about 31.5 to 32 million tons, from 3 to 5 per cent greater than in 1957, according to W. LeRoy Neubrech, assistant director, pulp, paper and paperboard, Forest Products Division, Business and Defense Services Administration, U. S. Department of Commerce. Woodpulp consumption will parallel the trend in paper and board output and domestic pulp production is expected to maintain its relative position in the market. . . .

FORECAST 57% RISE IN PROFITS BY 1962. . . . Presidents of 109 companies surveyed by Dun's Review predict their firms will have increases by 1962 of 57.8% in profits, 34.1% in sales, 27.2% in invested capital and 15% in number of employes. These figures are weighted averages. For the immediate outlook, 25% of the presidents are as confident this year as last, 19% are more optimistic, 42% are mildly pessimistic, 10% think the economy might go either way and a few express no views. . . .

SOUTH AND WEST SHOW BIGGEST GAINS in manufacturing employment since 1940 while Middle Atlantic and New England states suffer sharpest decline, according to a recent United Press survey. Of 20 major industries in the U. S., the South leads the entire country in the rate of expansion in 13, keeps pace in three more, and lags in only four. In 1900 the South had only 9% of the nation's manufacturing facilities, today has 22% and is gaining every year. . . .

PLAN TO BUILD MORE HOMES IN 1958. . . . Builders at the Natl. Assn. of Homebuilders convention in Chicago plan to build 14% more homes in 1958 than in 1957. A similar poll last year forecast a housing drop of 10%, almost a bull's eye (actual decrease of 11% in '57). Associated General Contractors of America predict a record $68,000,000,000 construction year in 1958. . . .

CAPACITY WILL STAY AHEAD. . . . "If we assume that the annual increase in consumption experienced in the three years 1954-56 will continue, there will be a world surplus capacity for sulfate pulp during 1958 and 1959 of 10 to 15%", Pres. Ralph M. Shaw told shareholders of MacMillan & Bloedel in Vancouver, B.C. "A similar situation can be expected for the kraft paper and board products. With respect to newsprint it seems improbable that demand will rise as high as 95% of productive capacity before 1960." . . .

New Mills and Mill Plans . . .

MORE MILLS CHANGE FROM STRAW TO WOOD. . . . two more major Middle West paperboard mills are changing over from straw to woodpulp. The widely fluctuating prices of straw have forced their hand. One is already engineering for equipment to make woodpulp from local forests. The other is making similar plans for the near future. . . .

GERMANS INTERESTED IN NEWFOUNDLAND OR LABRADOR? . . . a rumor that simply couldn't be run to earth was going around the Montreal meeting to this effect. Stora Kopparberg (Sweden), of course, is planning to build in Nova Scotia but is in no hurry and same goes for Crown Z's plans in Newfie. The rumor of German interests couldn't be pinned down. . . .

Please turn page for more

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SYNTHO-ASBESTOS Dryer Felts

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PULP & PAPER # Monthly Report

. . . of significant news and views

KIMBERLY-CLARK MOVES IN EAST CANADA. . . . K-C acquired 35% interest in Irving Pulp & Paper Ltd., St. John, N.B., for a reported $8,400,000. Capacity is 200 tons a day of sulfite. H. R. Craig is K-C project, and it is understood the immediate objective is to build a 200-ton kraft pulp mill costing $16,000,000. Kimberly-Clark is going to build a new tissue converting plant at St. Hyacinth, Que., 30 miles east of Montreal. . . .

PLANS PULP MILL IN NEW ENGLAND. . . . Thomas E. Prescott, vp of Mt. Tom Development Corp., says the firm plans to spend about $3,500,000 on remodeling its mill in Northampton, Mass., to make pulp and cardboard. About $500,000 worth of hardwood will be bought annually from woodlot owners in the area. When completed the mill, which formerly belonged to Doeskin Products, will be turned over to the Mt. Tom Pulp and Paper Co. . . .

NEW VISTAS FOR SOUTHERN HARDWOOD. . . . Bowaters Southern Paper Corp. will build another new mill at Catawba, S.C., site of its under-construction pulp mill. The product, Bowater Board, made of 100% hardwoods, was developed at pilot plant at Coos Bay, Ore., and will utilize overabundant low quality hardwoods. Rayonier, Inc., is experimenting with increased use of hardwoods at its Jesup, Ga., mill. Runs using up to 100% hardwoods have had "excellent results." None of this pulp is for the market. . . .

TEXAS MILL IS READY. . . . Southern Pine Lumber Co.'s fiberboard mill at Diboll, Tex., made test runs in January and was expected to be in full operation in March. It was awaiting completion of a new sawmill built in the vicinity by the same company. The Diboll mill is making liner and building board and later will get into decorative board and quality board. It may use round wood as well as chips. . . .

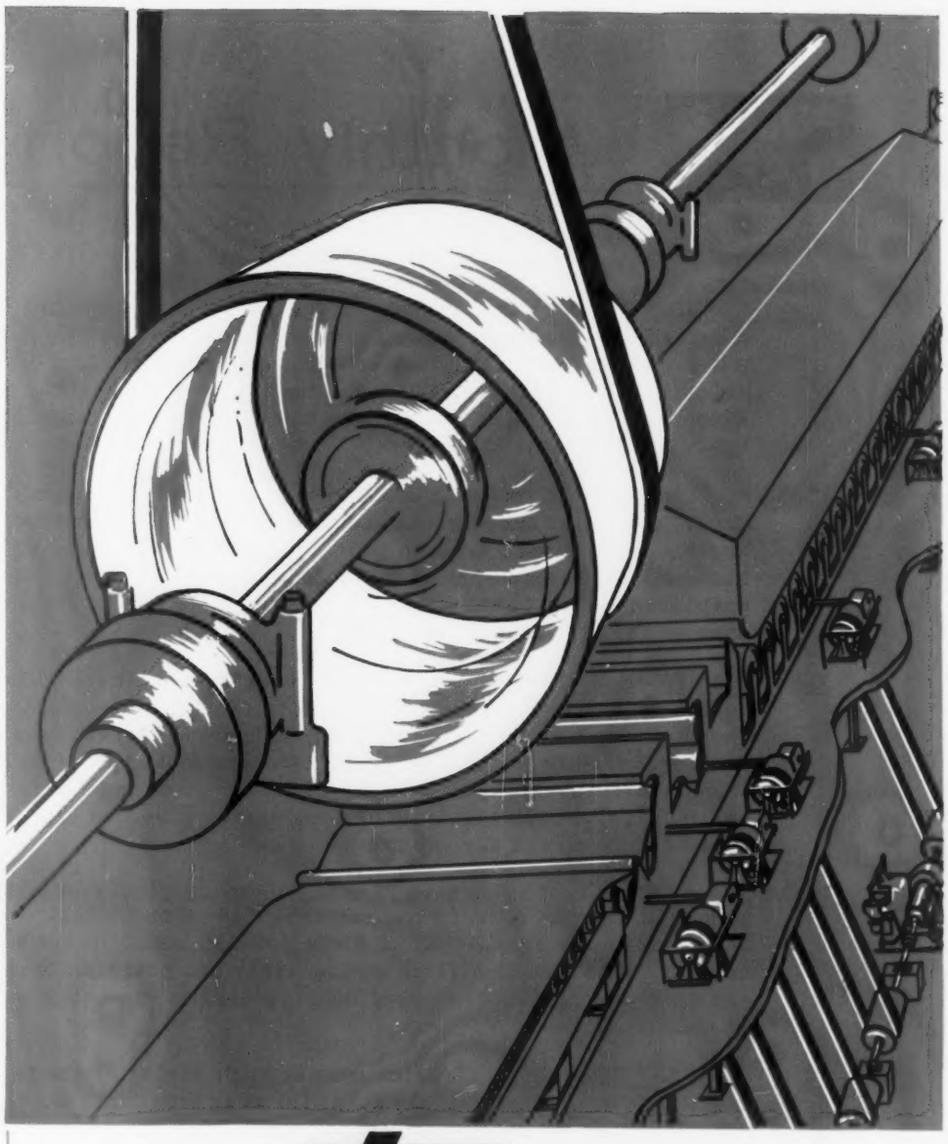
B. C. PULP MILL "TUNES UP". . . . Trial runs at B. C. Forest Products recently-completed $46,000,000 bleached sulfate pulp mill at nearby Crofton, B.C., were successful and "checking out of equipment is progressing well," according to John Grieve, mill manager. The mill has been conducting run for several weeks. The bleached sulfate pulp to be produced by the mill will be used in making many kinds of paper, including fine paper facial tissues, breadwrap and food containers. . . .

NEW PULP PRODUCTS IN CALIFORNIA. . . . Production of molded pulp egg cartons by Diamond-Gardner Corp. got underway at the company's new integrated forest products plant at Red Bluff, Calif. late in 1957. This new plant, which will include a sawmill, planing mill and kilns in addition to the molded pulp plant, should be in full operation late this year. . . .

JOHNS-MANVILLE SEE "GREATEST GROWTH". . . . Eight new plants are scheduled to be in production during 1958 as Johns-Manville Corporation observes its 100th anniversary, bringing the company's total facilities to 26 plants and four mines in the United States, Canada, Belgium and Africa. The new facilities are part of an expansion and work improvement program in which Johns-Manville has invested more than $230,000,000 in anticipation of "the greatest era of economic growth the United States has ever seen." . . .

NEW SOUTHEASTERN PLANT FOR BESTWALL GYPSUM CO. will be at Brunswick, Ga., instead of Savannah, as recommended by engineering studies just completed. . . .

Please turn page for more



At Rhoads, the Job Selects the Belt

In the Rhoads' family of beltings, there is a flat belt that is exactly right for your operating conditions.

It may be Tanastic, new leather/plastic belting with a stretch-free nylon core.

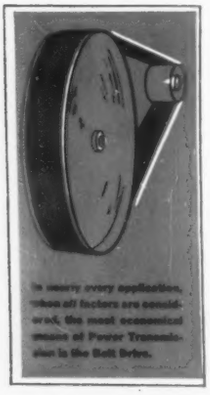
It may be Texalon, new all-synthetic belting of fabric and nylon . . . elastic and almost 100% stretch-free.

It may be Tannate leather belting, the product of more than 250 years of tanning experience.

Rhoads' Engineers Consider All of the Factors Involved

The advantages of the flat belt drive — economy in original cost and in operation; highly efficient speed reduction; shock absorption; high degree of safety; flexibility in placement of motor — all these advantages and many others are used by Rhoads' engineers.

Based on the job the belting is to do, and the operating conditions involved, Rhoads recommends the belting that is engineered to your needs.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Makes Power Transmission News

In every industry, where unscheduled shutdowns for belt adjustment increase production costs and "eat up" profits, the new Rhoads Tanastic, leather/plastic flat belt, is the choice of belting engineers.

Shown is a lineshaft-driven papermaking machine, where power must be transmitted smoothly and uniformly regardless of shock loads. On cone drives, Tanastic belts down to one-third the width of previous belts can frequently be used. Permits faster driven speeds and a wide variety of speed changes.

Tanastic has a stretch-free nylon core that gives the belting the ideal combination of strength and elasticity. Economical replacement for other flat or V-belts. Easily designed for new installations.

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RHOADS

Since 1702 . . . Pioneers in Mechanical Power Transmission

PULP & PAPER # Monthly Report ... of significant news and views

SONOCO NO. 10 WILL START UP SOON. . . . Sonoco Products Co. President J. L. Coker reports that firm's new No. 10 machine may be operating by March, ahead of schedule. Also near completion: the new power plant, new pulp plant with a continuous digester described as "one of the first of its kind in the world." (See page 74, Feb. 1958 issue) . . .

UNION BAG-CAMP COMPLETES REBUILD OF NO. SIX. . . . At Savannah, No. Six machine has been altered to accept heavier grades of paper without losing speed. Its 83 dryer rolls were changed from 76-lb. steam pressure dryers to 150-lb. dryers. Work was carried out during shutdowns, starting in June and completed during Christmas shutdown. The 76-lb. dryers, once used on No. Four machine, may see more duty on No. Seven, when it is built. . . .

RIEGEL PAPER MILL STARTUP EXPECTED IN SPRING. . . . Riegel Paper Corp.'s Acme, N.C., paper mill, an addition to the present pulp mill, is expected to be in operation late this spring. Its new paper machine, which will produce bleached paper and board, has been dubbed "Carolina Belle." . . .

SPENDS $500,000 TO REBUILD PAPER MACHINE. . . . Mosinee Paper Mills Co., Mosinee, Wis., is installing Bauer cleaners, headbox and slice, vacuum pump on suction couch, motor-generator set, table roll deflectors and relocating the size press of its No. 2 paper machine. . . .

Other News . . .

WTCO ENTERS FINE CHEMICAL MARKET. . . . Weyerhaeuser Timber Co. is producing quercetin, a derivative of Douglas fir bark, for pharmaceutical and chemical uses. It was formerly derived commercially only from imported raw materials. . . .

ClO2 BLEACHING FOR CHILLICOTHE. . . . Mgr. George H. Sheets announces the Chillicothe (O.) Division of Mead is building a new 4-stage bleach plant for soda pulp, with chlorine dioxide as final stage. It will replace a 3-stage plant without chlorine dioxide. . . .

SOUTHERN UNION WINS TOP MILL LABOR RATE. . . . According to the United Papermakers and Paperworkers, an agreement recently concluded with management of Gulf States Paper Corp.'s Demopolis, Ala., mill sets a new high base labor rate for the North American paper industry—a minimum rate of $2.12 per hour. . . .

TERMS OF B.C. STRIKE SETTLEMENT. . . . The United Papermakers and International Brotherhood of Pulp, Sulfite and Paper Mill Workers unions accepted a two-year contract with 7 1/2% wage increase retroactive to last July 1 and a further 2% raise next July 1. This brings minimum wage to about $1.91 an hour. Estimates are the 82-day work stoppage cost over $50,000,000 in production losses, $5,000,000 in payroll losses and over $1,000,000 in union strike pay. It involved 6,000 pulp and paper workers in British Columbia mills. . . .

GUARANTEES STEADY WORK DURING 1958. . . . Champion Paper & Fibre Co., Hamilton, O., guarantees regular employes of two-year's standing at least 48 weeks of employment, or equivalent time, during 1958. This is believed to be the first plan of its kind in the pulp and paper industry. . . .

COMING THING IS NON-GLARE COATED PAPER. . . . Some experts say eventually non-glare coated paper will mean to publications what machine-coated now does. It permits better reproduction than a high gloss finish. Principle problem is high cost. . . .

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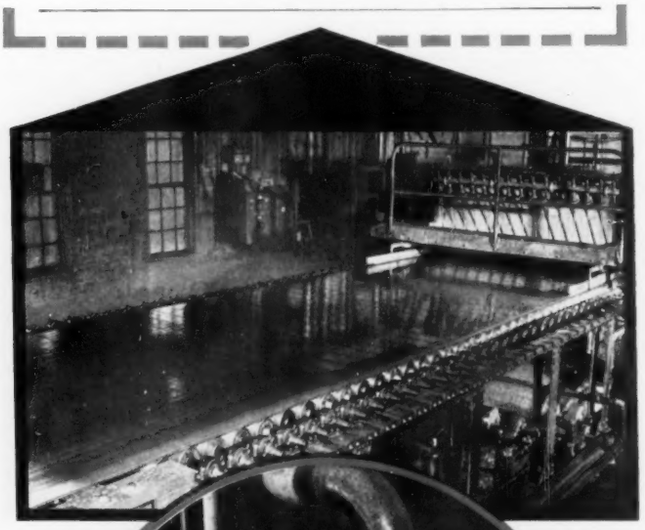
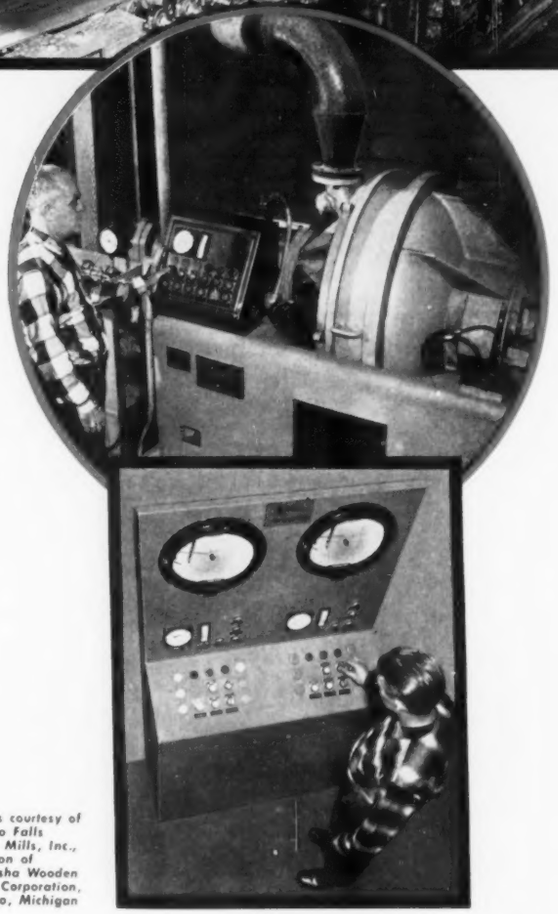


Bauer Pump Thru Refiner controlled by Couch Vacuum Does the Job



- Compensates for slight stock variations quicker than the best operators.
- Prevents over or under refining, corrects for hard or soft cooks.
- Has improved sheet formation within minutes after first start-up.
- Controls are simple, easy to maintain.

Write, wire or call for details.

Photos courtesy of Otsego Falls Paper Mills, Inc., Division of Menasha Wooden Ware Corporation, Otsego, Michigan

WORLD PULP & PAPER General News

Key Men at Chihuahua

Mexico City . . . Key men from Kimberly-Clark headquarters staff and other experienced K-C operators are coming and going from the Celulosa de Chihuahua, SA., the big kraft pulp mill 64 miles southwest of Chihuahua on Lake Bustillos. Manager is Ronald Evans, who came from K-C engineering staff at Kapuskasing, Ont. Technical supt. is John Valente, from K-C research, and sulfate supt. is Thor Olson from Kimberly Clark mill at Terrace Bay, Ont. These men will continue at Chihuahua, at least until after Dr. Rhys takes over management in about April. Mexican trainees are also getting experience in K-C operations in the U.S.

Dr. Rhys Becomes Manager Of Celulosa de Chihuahua

Dr. Ladislav Joset Rhys, builder and engineer for mills in his native Czechoslovakia, in Rumania and in recent years in Brazil, will take over management of the Mexican-owned Celulosa de Chihuahua, S.A., on Lake Bustillos, 64 miles southwest of the city of Chihuahua. Kimberly-Clark Corp.'s contract to manage the mill will expire shortly. K-C took over shortly after the mill was built to iron out some operating problems. K-C will continue to purchase Chihuahua pulp for its two paper and wadding mills in Mexico City. The Chihuahua mill sells bleached and unbleached kraft to 13 Mexican paper mills (description in PULP & PAPER, Feb. 1957, p. 46.) Dr. Rhys is widely known in North and South American pulp industries as a consultant. He was general manager of the Klabin de Parana mills in Brazil, built in virgin wood wilderness much the same way as Chihuahua. He wrote reports on Brazil for PULP & PAPER's World Review Numbers.

Survey for Small Pulp Mills

Vancouver, Canada . . . Sandwell & Co., Vancouver consulting engineers has been retained by the Organization for European Economic Cooperation of United Nations to conduct a survey of possibilities of establishing small pulp mills in Europe. The eight countries participating through the OEEC are Austria, Belgium, Denmark, Holland, Italy, Eire and the United Kingdom. Sandwell & Co.; is building a mill in Pakistan and directing operations of mills on four continents.

Buys Interest in Brazilian Mill

Mogi Guacu, Sao Paulo . . . Champion Paper & Fibre Co., Hamilton, O., will manage and operate an integrated bleached kraft pulp mill at Mogi Guacu in the state of Sao Paulo now being built by a new Brazilian company. Champion has acquired an interest in the company. Stadler Hurter International Ltd. are consulting engineers for the new mill which will have a complete chemical recovery unit and its own caustic soda production facilities. Initial capacity will be about 150 tons daily of bleached kraft pulp made from eucalyptus. The pulp will be sold to the Brazilian domestic market. It is due to start up early in 1959 and will employ about 300 workers. M. A. Campbell of Stadler Hurter is resident engineer supervising construction.

Japan Imports Soviet Timber

Tokyo (from PULP & PAPER'S correspondent) . . . Japanese imports of Soviet timber for the year 1957, practically completed by the end of November, totaled 58,119,720 bd. ft., exceeding the 55,440,000 bd. ft. originally planned. Species imported are ezomatsu (spruce), todomatsu (true fir) and karamatsu (larch).

USSR's Far Eastern Industry Grows

Moscow . . . Soviet paper and cardboard production in mills on the island of Sakhalin, off Vladivostok, in the Pacific Ocean, has risen from 51,446 tons in 1948 to 160,830 tons in 1956. Cellulose production has increased at a similar rate. Production includes printing paper, art paper, newsprint and special papers such as cigarette paper. The mills' output may soon become an important factor in Far Eastern and southeast Asian markets.

Red China Starts Up Mill

Hong Kong . . . The Seiping government news agency reports that Communist China has put into operation a new newsprint mill at Canton. It has a capacity of 50,000 tons per year, or a third of the national total.

Swedish Mill Builds Bleach Plant

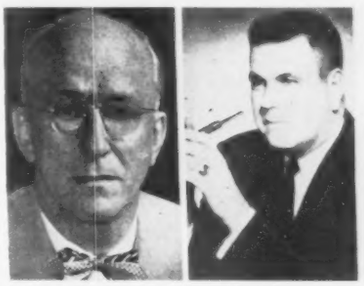
Sundsvall, Sweden . . . Wifstavarfts AB has begun construction of a chlorine dioxide bleach plant at its sulfite pulp mill at Fagervik, to be completed in 1959. Capacity will be about 44,000 tons bleached pulp per year, about half of the pulp mill's present capacity.

Joins Mexican Mill

Mexico, D. F. . . . J. Wayne Dappen is new technical assistant to the general manager at Cia Industrial de San Cristobal, an affiliate of Scott Paper Co. Mr. Dappen has a ph.d from the Institute of Paper Chemistry and has been with Scott since 1949. He will report to Dr. Roy L. Davis, formerly manager of Detroit Sulphite, now executive vice president and general manager of the Mexican company.

News from United Kingdom

London . . . The Dartford Paper Mills, Dartford, Kent, are building a new mill with a 180-in. high speed machine. A new mill with a 111-in. machine, specializing in felt base paper, chip board and mill wrappers, is being built at Kirkcaldy, Scotland. The Woodhall Paper Co. have installed a new board machine with 110-in. trim and Wiggins, Teape have ordered a No. 4 machine for its Bridgend Mill. A new board mill was opened at Queensferry, North Wales.



Walsh ..... Howe

New President—Visitor

M. C. WALSH has been elected president of new Brazilian firm which Champion will manage and operate. Mr. Walsh has been with Champion since 1929 and was mgr. of its Washington, D.C., office for the last four years.

ROBERT E. HOWE will visit pulp and paper mills near Khulna and Chittagong, East Pakistan, in his capacity as mgr. of sales for Morriss Engineering Co., St. Louis, Mo., manufacturers of barkers, chippers, etc. As mgr. of equipment sales for parent company, Wood-Treating Chemicals Co., he will be engaged in erection of several wood preservation plants and training of operating personnel.

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THE NEW ADJUSTABLE TRULY FLEXIBLE LAWSON CONTOUR CLAMP

Hydraulics plus air assures uniform clamping pressure regardless of surface irregularities.

The new Lawson Adjustable Truly Flexible Contour Clamp flexes to conform to the irregularities in the surface of the lift. It gives full, uniform clamping pressure all the way across the work being cut. The result is unmatched cutting accuracy and production.

You do not need to pad the clamp or reduce the height of the lift to avoid inaccurate cutting of "difficult" papers. Lawson uses hydraulics plus air to give you a truly flexible clamp that is really adjustable.

Standard equipment on all Lawson 60", 66" and 69" Pacemaker Mill Cutters, optional on all other Lawson Hydraulic Clamp Cutters. Write today for full details.

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WORLD PULP & PAPER General News

Yugoslavia to Get Rice Straw
Koncare, Macedonia . . . Yugoslavia expects to produce about 11,000 tons of pulp per year, using rice straw, at a new mill to be built at Koncare.

Advanced Pulp, Paper Tech Course Started in India
Dehra Dun, India . . . A post-graduate pulp and paper technology course has begun at the Cellulose and Paper Branch, Forest Research Institute, Dehra Dun. This is the first regular pulp and paper technology course ever made available to students in India. Dr. J. C. Ghosh, member, Planning Commission, Government of India, inaugurated the course. Dr. R. V. Bhat, officer in charge of the cellulose and paper branch of the Forest Research Institute and correspondent for PULP & PAPER in India, said over a year and a half had been taken in finalizing the syllabus and the curriculum of the course. Minimum admission requirement is a degree in chemical engineering and duration of the course is one academic year. Successful students will be entitled to use D.F.R.I. (Diploma of the Forest Research Institute) after their names.

Tunisia to Get Esparto Mill
London, England . . . Gerald W. Andrews, pres. of the British Esparto Sellers Assn., reports that the long proposed esparto pulp and paper mill, to be erected in Tunisia, now looks like becoming a reality

Propose Mill in Honduras
Tegucigalpa, Honduras . . . Construction of a pulp and paper mill in the Olancho tract of Honduras is under consideration. The proect, estimated to cost $50,000,000, would have a capacity of 300 tons daily of newsprint, kraft, bond and other papers. Reports indicate paper made from Honduran pine is exceptionally strong.

Welders at work on a Type 317 ELC stainless steel vapor head for a new Swenson Evaporator.

Design plus 317ELC plus Fabrication

. . . the formula for the high quality Swenson Evaporator at Ketchikan

One of the few mills in the world using the magnesium base sulphite process, Ketchikan Pulp Company, Ketchikan, Alaska, called on Swenson engineering to design and fabricate an evaporator capable of handling the corrosive pulping liquors with trouble-free ease. Today, Ketchikan Pulp Company depends on its continuously operating Swenson sextuple-effect evaporator . . . fashioned of Type 317 ELC stainless steel. This quality material combined with superb Swenson craftsmanship helps Ketchikan maintain its production of high grade pulps.

Swenson's extensive experience in design of process equipment combined with its use of the most modern fabricating facilities provides the assurance that high standards of performance and equipment life will be met. *Swenson Evaporator Company, 15632 Lathrop Ave., Harvey, Ill.*

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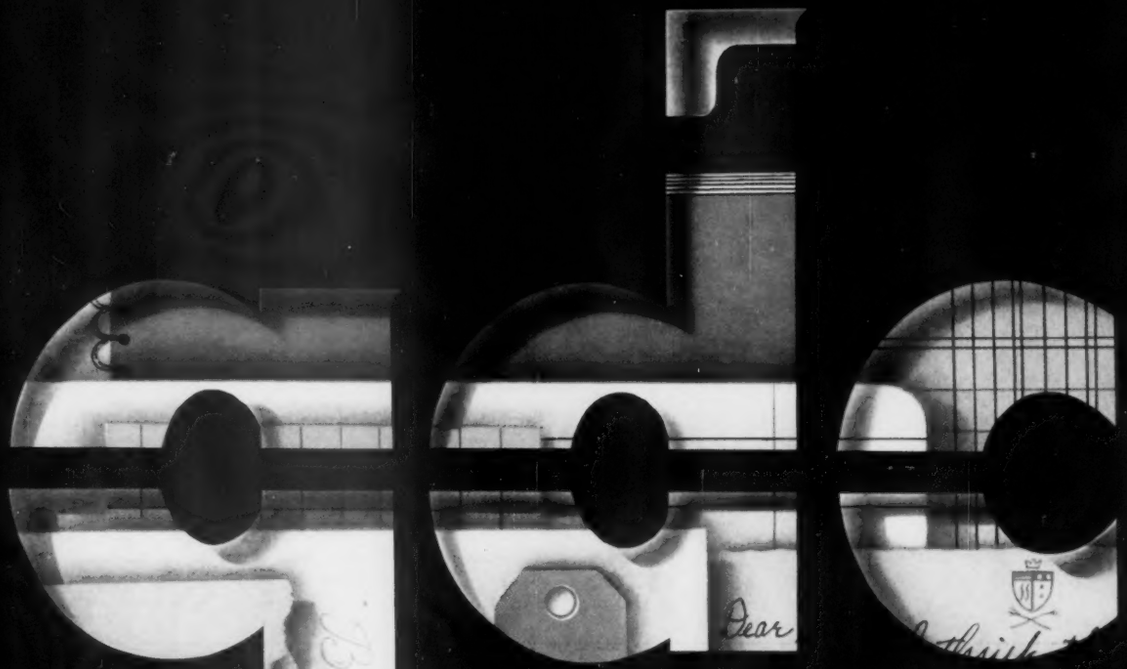

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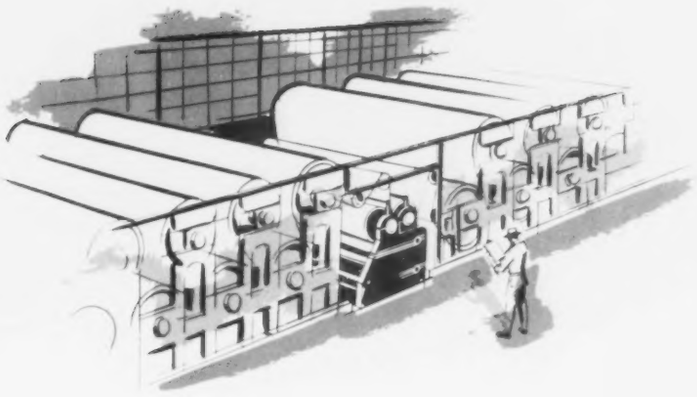

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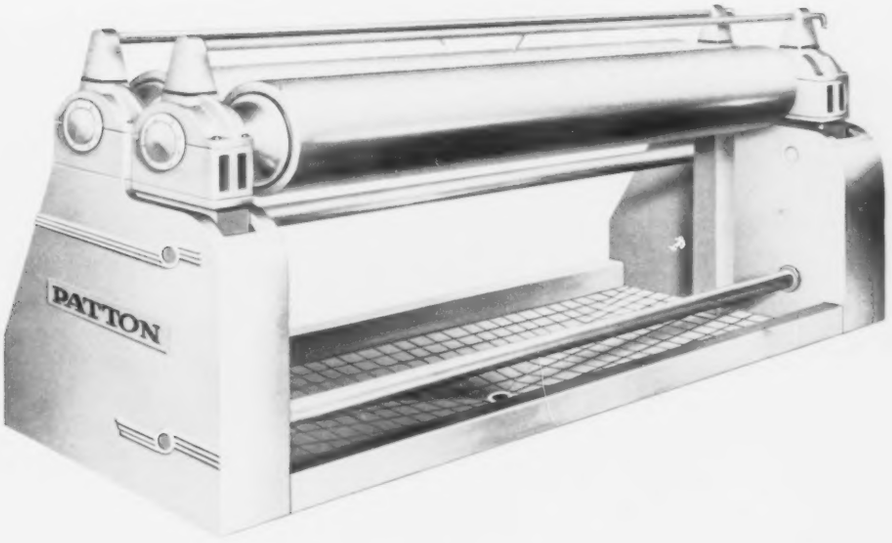

by **PATTON**

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WORLD PULP & PAPER Technical News

More Countries to Report . . .

Readers of this World Technical News dept. may look forward in future months to some more exotic technical information—coverage of world literature is being extended to China, Rumania, Czechoslovakia, Hungary, etc

(Presented with permission of The Institute of Paper Chemistry, under supervision of Curtis L. Brown, editor of IPC Bulletin. Photostats or translations of original reports available at reasonable cost by writing Eugene Bunker, librarian, Institute of Paper Chemistry, PO Box 498, Appleton, Wis.)

Peroxide Bleaching in Norway . . .

HENTOLA, YRJO, HAKKARAINEN, NIILO, BACKLUND, CARITA, and SIITOLA, HANNES. Paperi ja Puu 39, no. 11: 501-5, 508 (Nov., 1957). [In English; Finnish summary] Bull. Inst. Paper Chem. 28: 603.

Single-stage bleaching of spruce sulfite pulp with sodium peroxide (I) and effects of various pretreatments were studied. With 1.5% of (I), based on moisture-free pulp weight, the maximum brightness increase (II) was about 6 G.E. units. With 5% of (I), a (II) of 13-14 G.E. units was obtained. Preacidification with hydrochloric or sulfuric acid or sulfur dioxide had no effect. Pretreatment with hypochlorous acid or calcium hypochlorite (3% available chlorine), followed by 2-3% of (I), gave a total brightness increase of 18-19 G.E. units. When the pulp was not washed after hypochlorite pretreatment, (II) decreased by 2-4 G.E. units and the yield increased by about 1%. The (I) must not be completely consumed; a residue of 0.2-0.3% (based on ovendry pulp weight) is sufficient. Increasing alkalinity of peroxide bleach increased consumption of (I) and improved brightness. Suitable amounts of stabilizers were 5% sodium silicate (40°Bé.) or 0.06% Epsom salt. Lower amounts increased consumption of (I). Temperature appeared to have little effect on results of peroxide bleaching. C.L.B.

Finns Weigh Logs in Water

OLLINMAA, PAAVO J. Paperi ja Puu 39, no. 11: 531, 533-4 (Nov., 1957). [In Finnish; English summary] Bull. Inst. Paper Chem. 28: 650.

Accuracy and reliability of four different methods for determining volume weight of wood by water immersion (Archimedes' principle) were compared, using 237 normal and 269 tensionwood samples taken from 31 birch trees. The four methods comprised determining both weight and volume unparaffined (I) and paraffined (II), weight unparaffined and volume paraffined (III) and weight unparaffined and volume calculated by deducting the weight when paraffined (IV). Method (III) proved most accurate and reliable for comparing normal and tension wood. Methods (I) and (IV) gave the most reproducible results. Method (I) is considered the most reliable in comparative studies calling for high accuracy, because it is independent of the size and surface quality of the test pieces and because it takes into account the loss of paraffin in water. Methods (II) and (IV) have the advantage of rapidity, requiring only two weighings. C.L.B.

Rosin-Alum Sizing in Germany

JAYME, GEORG, and SEIDEL, WALTER. Contributions to the theory and practice of rosin sizing of paper. IV. Das Papier 11, no. 21/22: 500-14 (Nov., 1957). [In German; English and French summaries] Bull. Inst. Paper Chem. 28: 642.

Extensive analytical and solubility data confirmed previous findings of the formation of aluminum resinates (I) and abietates (II) on addition of alum to commercial sodium resinate and abietate solutions at pH 4.5. No aluminum hydroxide precipitated, even when the pH was raised to 7.3 (I) and (II) dissolved partly (40 and 33%, respectively) in purified absolute acetone; on prolonged contact with acetone, the solubility of (II) decreased appreciably. Aluminum diabietate (III) prepared by the method of Back and Steenberg (*cf.* B.I.P.C. 22: 189) dissolved completely in dry chloroform, benzene, and methylene chloride, 22% in absolute acetone, 7.4% in methanol, 8.7% in ethanol, 30.2% in dry petroleum ether, and 70.8% in ethyl ether. The chloroform and methylene chloride solutions were stable even on evaporation, and the composition of (III) did not seem to change. Aluminum monoabietate (IV) was completely soluble in chloroform, methylene chloride, and benzene, 47% soluble in petroleum ether, and 15.5% in acetone. The residue insoluble in petroleum ether yielded 21.9% alumina, indicating marked hydrolysis to aluminum hydroxide. The hypothesis that (II) precipitated at pH 4.5 is a mixture of pure (III) and free abietic acid is debatable. In absolute ether, (II) dissolved completely, whereas only 72% of (III) dissolved, suggesting that aluminum triresinate (V) may form initially in the precipitate, followed by hydrolysis. The data also contradict the assumption that resinous precipitates formed in alcohol, acetone, or moist ether are solely hydrolytic products. (II) dissolved almost completely in dry chloroform, ether, and benzene (regardless of the pH of precipitation), and the evaporated solutions gave alumina values of 5.2-5.5% which are within the range expected for either (V) or mixtures of free abietic acid and (III) or (IV). Amount of sodium present (presumably as sodium abietate) in (II) increased from 0.86% at pH 4.5 to 16.2% at pH 7.3. The alumina content, sintering range, and melting range of the dried evaporation residues of 12 artificial mixtures of (III) and rosin dissolved in chloroform were determined. Paper sheets impregnated with chloroform solutions of (III) and (IV) and dried at room temperature showed high degrees of sizing. L.E.W.

Studies Tertiary Wall of Fibers

BUCHER, HANS. Holzforschung 11, no. 4: 97-102 (Oct., 1957). [In German; English summary] Bull. Inst. Paper Chem. 28: 647-8.

Several wood fibers were subjected to relatively mild swelling in cuprietylene diamine solution to remove secondary wall (I). This macerating treatment did not noticeably deform the more resistant tertiary wall (II) so that its structure could be studied under the microscope after differential staining with Victoria Blue B. The orientation of spiral structures or striations in membranes could be determined from the slope of the "screw" threads, i.e., from the angle between the longitudinal axis and the spiral. Angles determined were 30 and 65° for *Picea excelsa*, 65° for *P. canadensis*, 70° for *Pseudotsuga taxifolia*, 80° for *Abies pectinata* and *A. balsamea*, 84° for *Pinus silvestris*, and 89° for *Larix europaea*. The slopes of (II) were compared with those of the corresponding (I), and morphological differences between (II) of *Picea* and *Abies* are emphasized. (II) and the outer layer of (I) show an S-shaped (left-handed) threaded structure, whereas the main portion of (I) exhibits a Z-shaped (right-handed) thread. The outer layer of (I) may also have a crossed fibrillar structure. Primary cellwall fibrils display a mesh-like structure. L.E.W.

Scriptite 40 is a *new* concept in urea formaldehyde resins for paper finishing. Because this water-soluble resin has been made more cationic, it is strongly attracted to the cellulose, assuring high efficiency in application. Scriptite 40 provides faster cure, and paper products maintain a higher wet strength value with less resin add-on than is usually required.

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SCRIPTITE 54 . . . *for outstanding water resistance and both wet and dry rub resistance.*
SCRIPTITE 52 . . . *in combination with formaldehyde to give water resistance to folding boxboard and to jute liner.*
SCRIPTITE 50 . . . *for unsurpassed printability and improved surface characteristics on boxboard.*
SCRIPTITE 33 . . . *a melamine wet-strength resin.*
SCRIPTITE 45 . . . *a new thermosetting resin for the stabilization of paper.*
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Conveyor Chain

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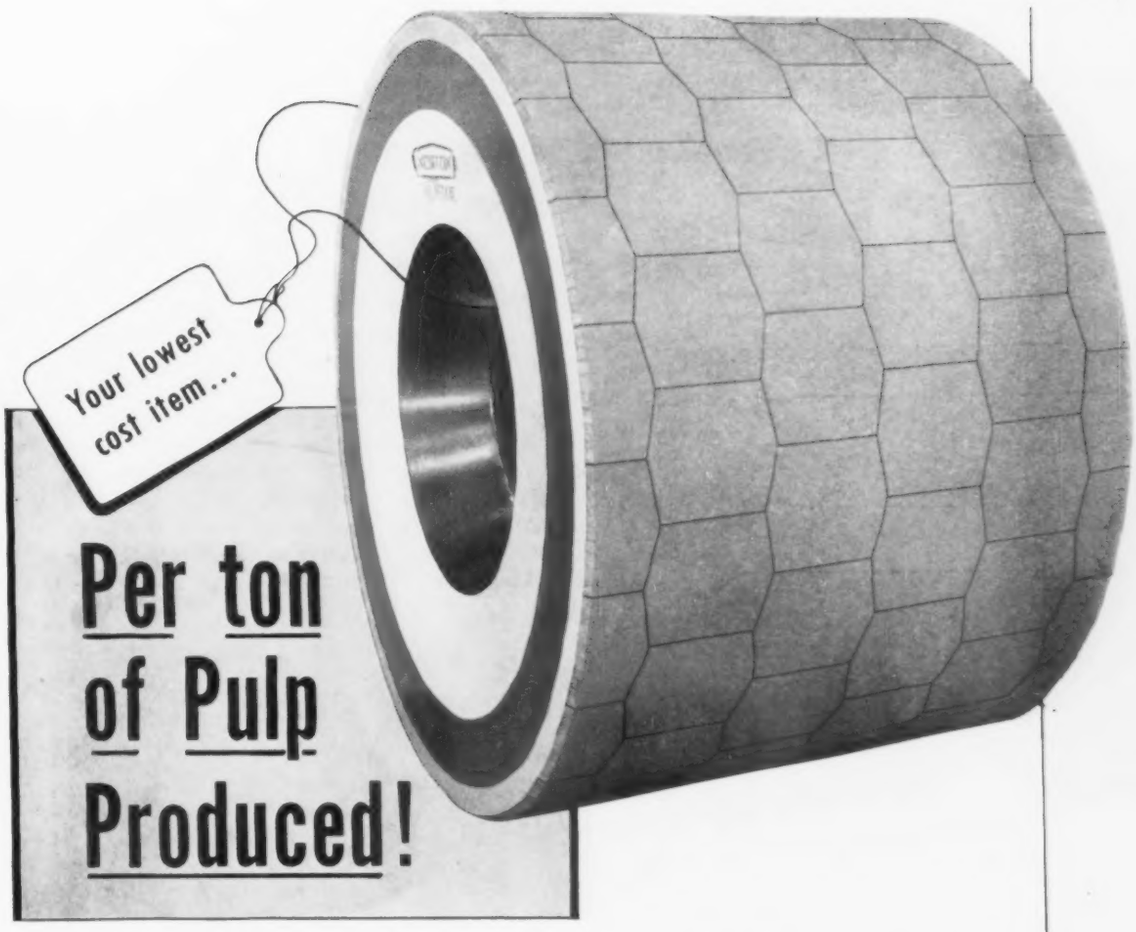
The new Rex SW150 Chabelco, an all steel chain specially designed for woodyard service, is the best yet. It is a direct replacement for A132 or A132WS—runs in the same troughs and over the same sprockets. It will prove the lowest service dollar investment for woodyard chain you've ever made.

You'll have the best woodyard chain you can buy if you use Rex SW150 Chabelco Woodyard Chain. Your CHAIN Belt Distributor will recommend it for the ultimate in long life under today's expanded operating conditions. He'll be glad to tell you more about Rex SW150 Chabelco Woodyard Chain.

CHAIN Belt Company, 4691 West Greenfield Avenue, Milwaukee 1, Wisconsin.

CHAIN BELT



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In one typical mill, for example, they figure that their stone cost today is ten cents per ton of pulp . . . and it was the same in 1948. Although stone prices have increased about 30% in that period, the efficiency of mill operation and the NORTON Pulpstone have so improved that stone cost per ton has remained practically constant. Today it is still their lowest cost item per ton of pulp.

Let your NORTON Pulpstone engineer specify the combination of abrasive, grit size, hardness and structure that will bring you just the type of pulp that you want from your wood at minimum cost.

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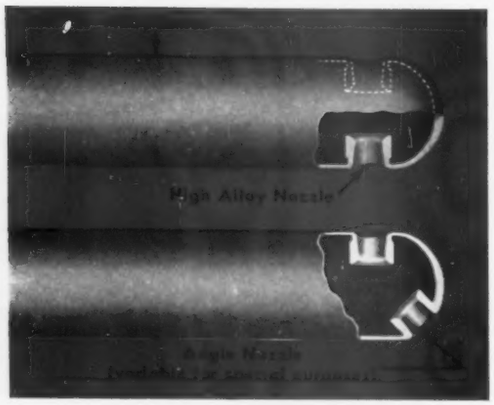
IMPROVED BLOWER NOZZLE

another important feature of the

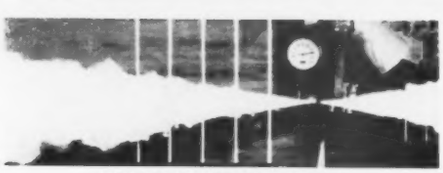
New Diamond Series 300 IK

LONG RETRACTING BLOWER

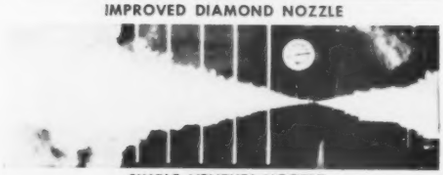


This improved nozzle provides more available cleaning energy per pound of steam or compressed air. A modified venturi, it is the result of extensive research during which more than 50 contours were tested.

This feature is one of many reasons why the Diamond Series 300.IK Blower does a better and more economical job of cleaning surfaces which require a long retracting blower. Other advantages are listed at the bottom of the page. Ask the nearest Diamond office or write directly to Lancaster for Bulletin 2111PP which will tell you much more about the new Series 300 IK.



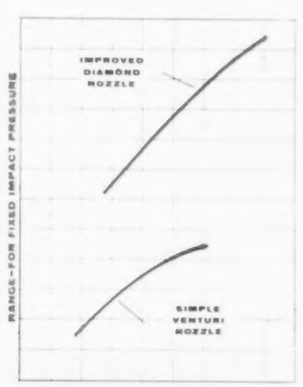
IMPROVED DIAMOND NOZZLE



SIMPLE VENTURI NOZZLE

Improved Diamond Type "A" Nozzle has low approach velocity for optimum nozzle performance (see curves below). It provides greatest impact for any given blowing pressure . . . means greater effectiveness and economy.

Note the greater blowing range of the improved Diamond Nozzle when compared with a simple venturi nozzle under identical test conditions.



7859

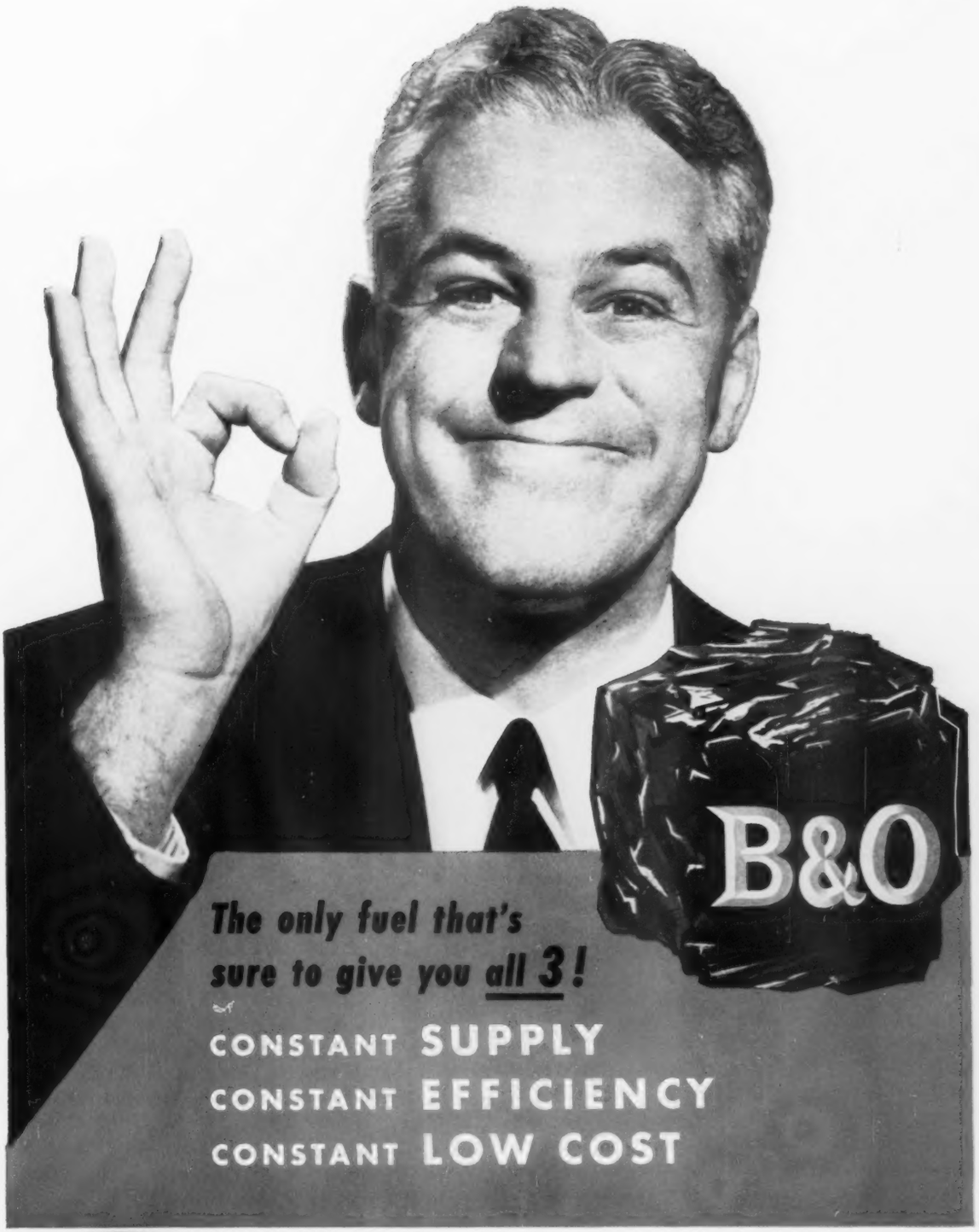
DIAMOND POWER SPECIALTY CORP.
LANCASTER, OHIO

Diamond Specialty Limited • Windsor, Ontario

OTHER ADVANTAGES OF SERIES 300 IK BLOWERS

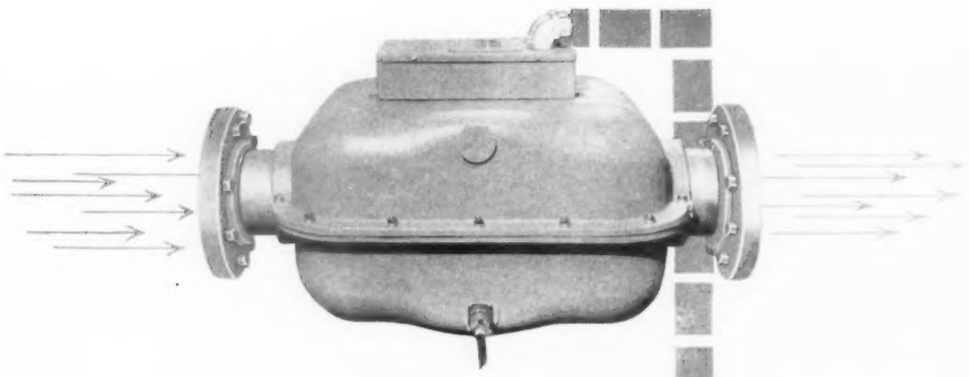
- Backbone and Protective Cover
- Front End Single-Motor Drive
- Compact, Accessible Electric Power and Control Terminal Facilities
- Positive Gear Carriage Drive
- Poppet Valve with Adjustable Pressure Control
- Positive Mechanically Operated Valve
- Improved Cleaning Pattern
- Single Point Outboard Suspension
- Oversize Lance (Step-Tapered for Extra Long Travel)
- Auxiliary Carriages for Extra Long Travel
- Designed for Quick, Easy Servicing

No other blower gives you all these advantages.

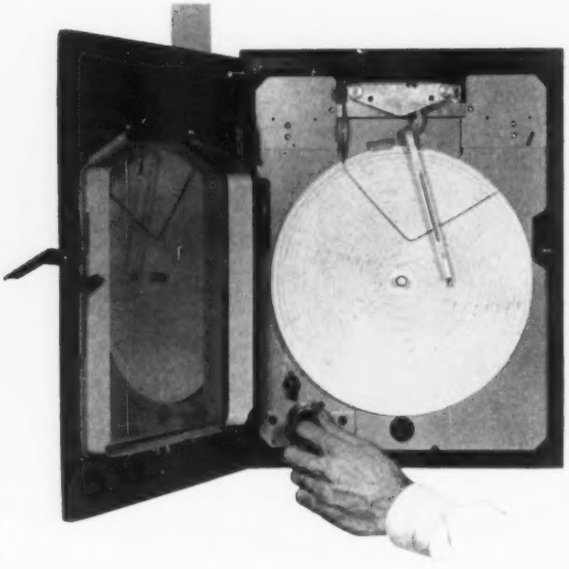


B&O BITUMINOUS COALS FOR EVERY PURPOSE

Ask our Man! BALTIMORE & OHIO RAILROAD, BALTIMORE 1, MD. *Phone* LExington 9-0400



NEW FLEXIBILITY IN OBSTRUCTIONLESS FLOWMETERING



The F & P Magnetic Flowmeter design lets you set any desired flow value *at full scale . . .* permits *utilization of the full receiver range.* Maximum flow can be set at any value from 1 foot per second to 30 feet per second . . . *at the turn of a dial!* This unique feature *is standard with every F & P Magnetic Flowmeter.* There's no extra charge, no complicated modifications.

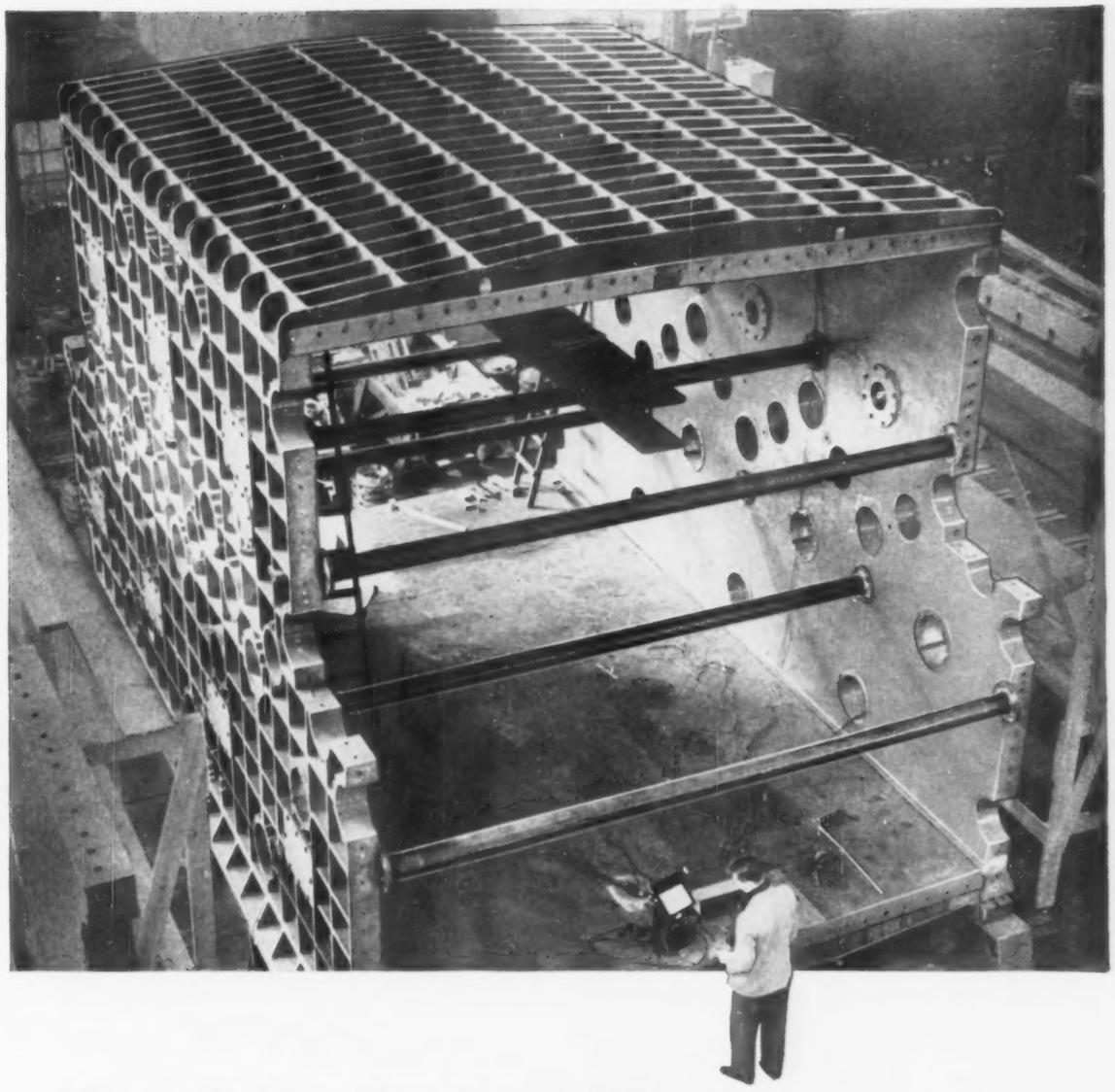
Available in pipe sizes from ½" and up, these flowmeters—plus the new F & P potentiometer-type indicator/recorder—comprise a metering system which permits interchangeability of any primary with any indicator/recorder. All types of standard secondary instrumentation—integration, control, retransmission—can be supplied in the recorder case.

You'll find that it's easy to substitute F & P Magnetic Flowmeters directly in existing flow-control or ratio-control systems. Get in touch with the F & P field engineer nearest you, and write for Catalog 10D1416. Fischer & Porter Company, 2138 County Line Road, Hatboro, Pa. In Canada, write Fischer & Porter (Canada) Ltd., 2700 Jane St., Toronto, Ont.

FP

FISCHER & PORTER CO.

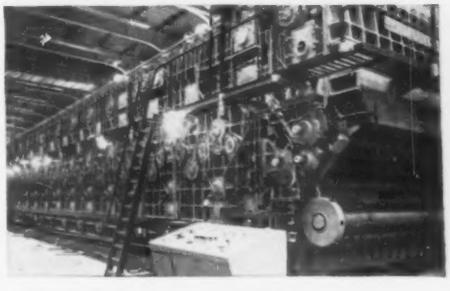
Complete Process Instrumentation



The Pulp Drying Machine

at Hinton, Alberta, is a

DOMINION



The strain gauge test, here being performed on a section of the vacuum chamber for the Dominion Vacuum Drying Pulp Machine, is typical of the modern methods employed by Dominion Engineering to ensure that its products maintain the high standard of performance established over the Company's many years of service to the Pulp and Paper Industry.

PAPER DIVISION

DOMINION ENGINEERING
COMPANY LIMITED

MONTREAL TORONTO WINNIPEG VANCOUVER

From the industry's most advanced pigment plant comes...

One of the many control centers at the new Adrian Joyce Works, Baltimore.

ZOPAQUE®

TITANIUM DIOXIDE

. . . the whitest white pigment available!

You can count on Glidden to supply your complete titanium dioxide requirements. Our new Adrian Joyce Works at Baltimore more than doubles the available supply of *Zopaque* Titanium Dioxide. Further plant expansions are now being made to help meet your growing needs in the years to come!

Zopaque gives you these advantages:

- Highly accelerated dispersion rate.
- Exceptional hiding power.
- Outstanding gloss and color retention.
- Low reactivity.
- Rutile and Anatase grades.

By the makers of SUNOLITH Lithopones and EUSTON White Lead

THE GLIDDEN COMPANY

Chemicals - Pigments - Metals Division

BALTIMORE, MARYLAND • COLLINSVILLE, ILLINOIS • HAMMOND, INDIANA • SCRANTON, PENNSYLVANIA

Why Link-Belt C class chains last longer in pulpwood handling

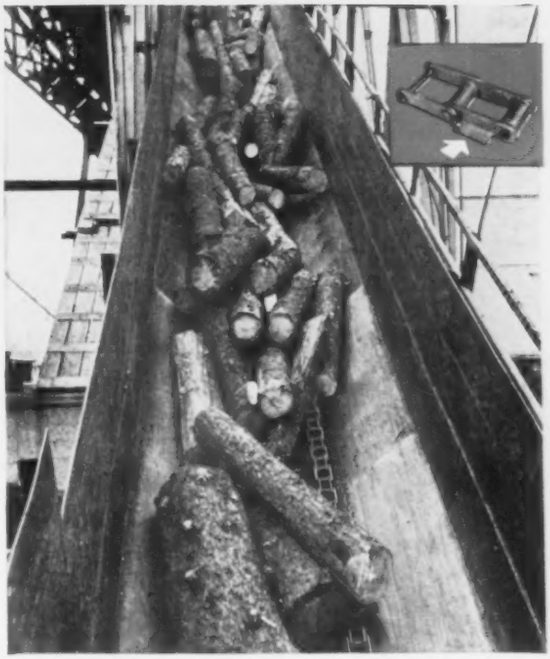
K-12 ATTACHMENT cushions C-132 chain on this horizontal conveyor from the constant pounding of 40 cords of hardwood per day.

C-132 chain with K-12 attachment withstands heavy hardwood impact

Broad sliding surface of K-12 attachment protects Link-Belt C-132 chain against the terrific impact of heavy logs falling on this horizontal conveyor. K-12 attachment features sturdy wear shoe which absorbs shock and transfers it to track, minimizing stress on chain joints . . . adds greatly to conveyor life.

Popular for both conveying and elevating, C-132 chain combines cast center links with steel sidebars connected by steel pins . . . offers high strength and ample joint bearing area. Broad tops and bottoms provide long sliding surfaces for drag conveyors.

Many other center link and sidebar attachments are available to suit a variety of conveyor applications.



K-9 ATTACHMENT on this C-132 chain provides broad sliding surface—greatly increases wear life of chain.

C class chain available in Promal for extreme loads and abrasive wear

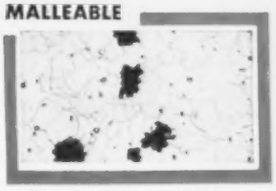
Specially heat-treated malleable iron provides extra wear resistance

The grueling day-in, day-out punishment of pulpwood conveying requires the added strength and greater wear resistance offered by Link-Belt's "file-hard" Promal C class chain. It's specifically designed to stand up under impact and abrasive abuse.

This rugged C class chain consists of Promal cast center links and steel sidebars connected by steel pins which are locked against rotation. The "file-hard" surface of the center links helps minimize conveyor shutdowns, replacement and maintenance costs.

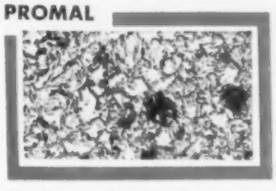
Promal is more than a partially annealed or surface hardened malleable iron. Developed by Link-Belt, this specially heat-treated malleable iron is actually transformed into a metal of radically different physical properties. Promal, because of uniform micro-structure throughout its whole section, provides greater ultimate strength, higher yield point, exceptional fatigue resistance and a remarkable ability to withstand abrasion.

MALLEABLE



White areas in malleable iron microphoto represent "free-iron," black is soft carbon nodules.

PROMAL



Dark areas in Promal structure show stronger, stiffer reinforcing material which strengthens metal.

These C class combination chains give efficient elevating service

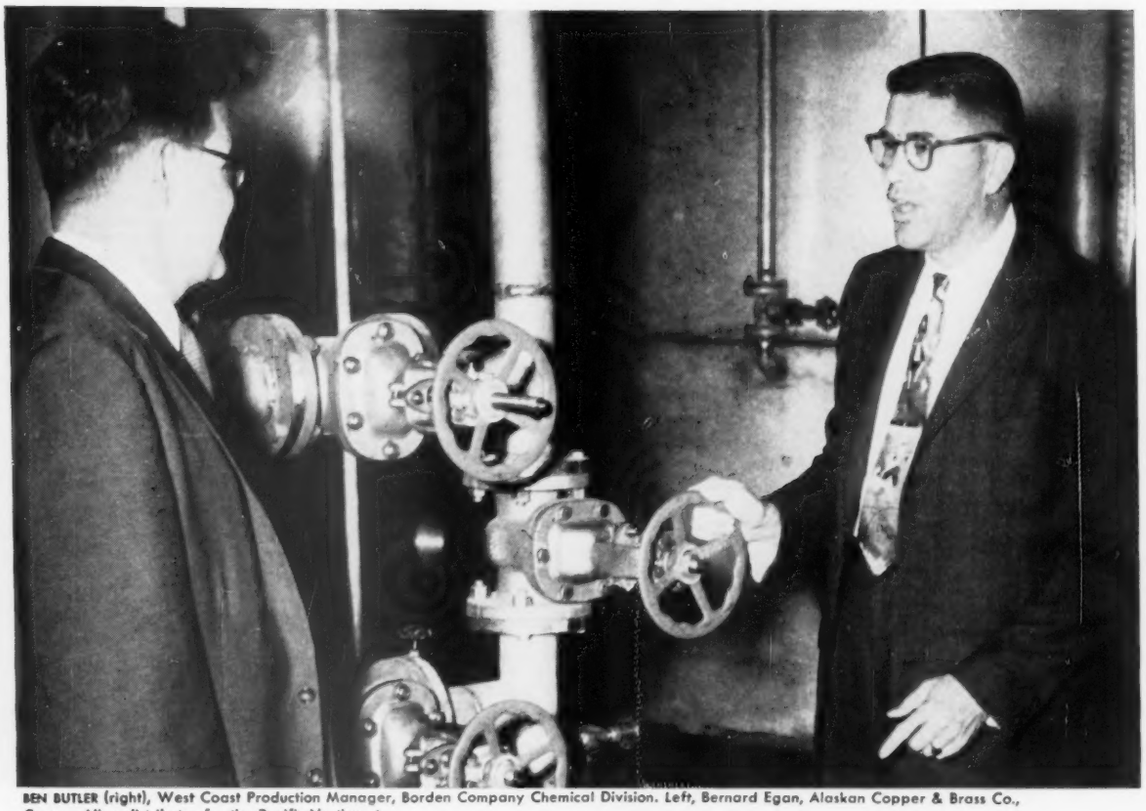
C class combination chain is one of the most popular for pulpwood log elevator service. The cast center link and steel sidebar combination forms a strong, rugged, yet inexpensive elevating medium. Generous pin bearing surfaces within the barrels give good wearing life and durability. Attachments are available for both malleable iron or Promal center links and steel sidebars.

HEADQUARTERS for Link-Belt products is your nearby Link-Belt factory branch store or authorized stock-carrying distributor. Refer to the yellow pages of your local phone directory.

LINK-BELT

CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 15); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 14,755



BEN BUTLER (right), West Coast Production Manager, Borden Company Chemical Division. Left, Bernard Egan, Alaskan Copper & Brass Co., Cooper Alloy distributor for the Pacific Northwest.

BUTLER OF BORDEN CHEMICAL

tells why he buys COOPER ALLOY stainless steel valves

Q. Mr. Butler, why does Borden Company Chemical Division require stainless steel valves?

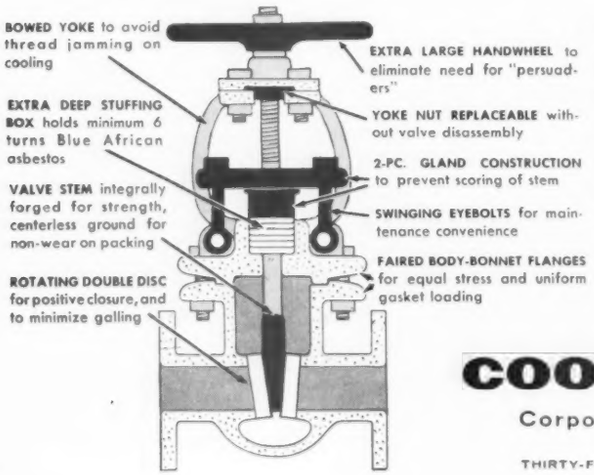
A. In the manufacture of formaldehyde, its derivative resins, and corresponding industrial adhesives only stainless steel can meet our rigid requirements for corrosion, contamination and heat resistance.

Q. What do you consider the most important factor in purchasing valves?

A. The truest measure of a valve is its operating performance. We have never received a complaint on Cooper Alloy valves from our engineers or operating personnel. The extra-large handwheel and unique valve design afford easy operation with positive opening and closing, minimizing maintenance and down time.

Q. What other factors count in choice of valve supplier?

A. Service. The large and complete Cooper Alloy stock at Alaskan Copper affords immediate delivery on stainless steel valves and fittings, as well as pipe. That's a big reason why we buy Cooper Alloy!


BOWED YOKE to avoid thread jamming on cooling
EXTRA DEEP STUFFING BOX holds minimum 6 turns Blue African asbestos
VALVE STEM integrally forged for strength, centerless ground for non-wear on packing
ROTATING DOUBLE DISC for positive closure, and to minimize galling
EXTRA LARGE HANDWHEEL to eliminate need for "persuaders"
YOKE NUT REPLACEABLE without valve disassembly
2-PC. GLAND CONSTRUCTION to prevent scoring of stem
SWINGING EYEBOLTS for maintenance convenience
FAIRED BODY-BONNET FLANGES for equal stress and uniform gasket loading

A VALVE DESIGNED FOR STAINLESS!

The Cooper Alloy valve is not an adaptation of earlier brass and iron patterns. Cooper Alloy, with over 35 years of experience in handling stainless steel, created a valve *designed to be cast in stainless!* **Check the Special Design Features shown at left.**

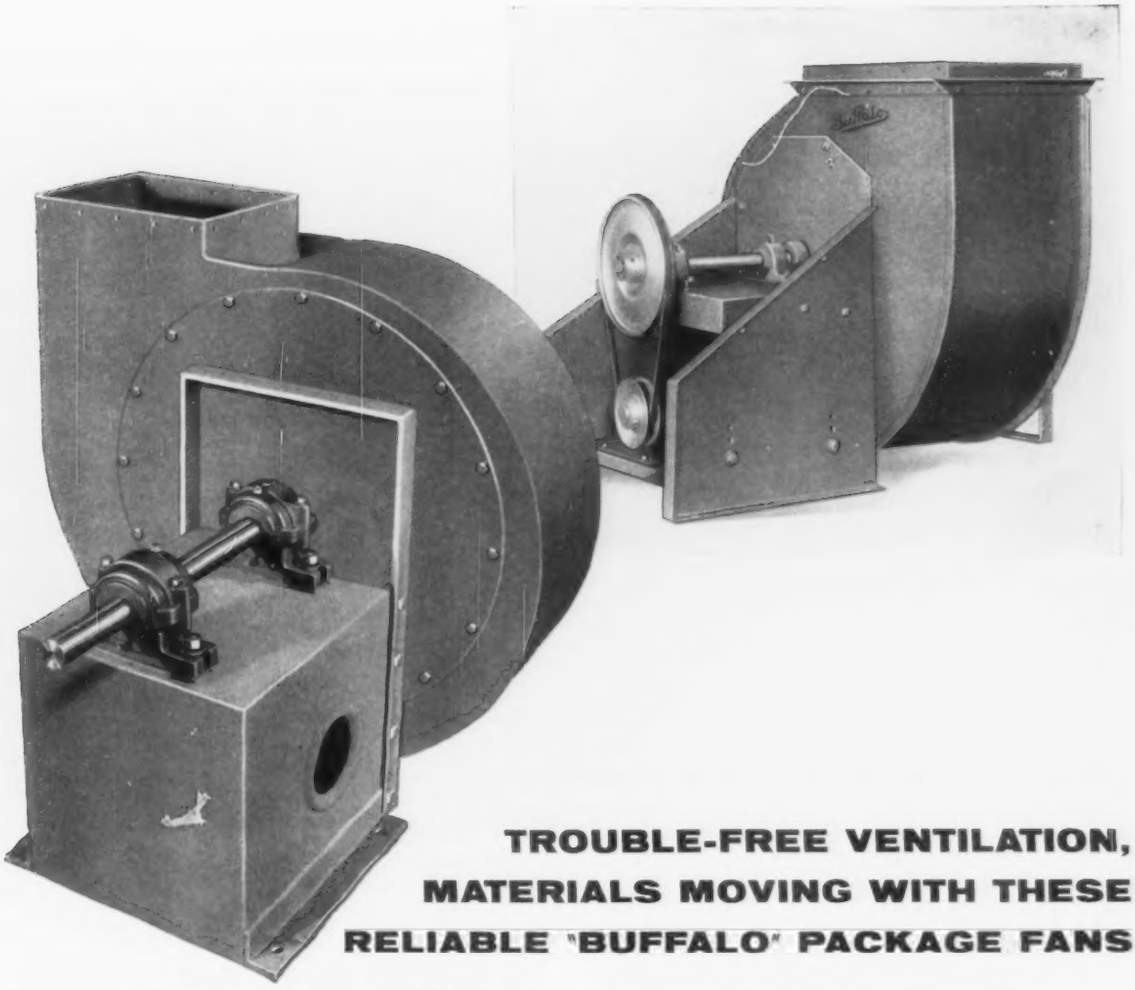
As the little CA man below is saying: "*You can tell a Cooper Alloy Valve as far as you can see it!*" Write today for *your* copy of our folder "Design Factors In Stainless Steel Valves." The Cooper Alloy distributor near you will be glad to show you the complete line of Cooper Alloy valves *and fittings*, and their advantages. He can serve you promptly from local stocks.

COOPER ALLOY

Corporation • Hillside, New Jersey

VALVE & FITTING DIVISION

THIRTY-FIVE YEARS OF STAINLESS STEEL PIONEERING



TROUBLE-FREE VENTILATION, MATERIALS MOVING WITH THESE RELIABLE "BUFFALO" PACKAGE FANS

"BUFFALO" INDUSTRIAL EXHAUSTERS

"Buffalo" Industrial Exhausters are available in a wide variety of models, capacities and arrangements to handle your most demanding air or material handling jobs with the utmost efficiency and dependability. The heavy welded steel plate housing is adjustable to any desired direction of discharge. Ease of maintenance is assured by the removable front and back plates. The several arrangements in the line include both belted and direct-connected drives. The 8-bladed, all-welded air wheel effectively exhausts hot air, gases, fumes and light dust. Corrosion-resistant construction can be specified. Two types of material wheels cover all exhausting requirements, from emery dust, sawdust, paper, and chips to long shavings and other stringy substances. Capacities range from 600 to 37,000 cfm.

There's a rugged, reliable "Buffalo" Industrial Exhauster to fit most air or material handling requirements. Call in your "Buffalo" Representative, or write for full information in Bulletin 3576-B.

"BUFFALO" BELTED VENT SETS

Where low initial and operating costs are important . . . where a quiet fan is necessary . . . where a "package" unit is desirable . . . more and more industrial users are turning to "Buffalo" Belted Vent Sets. These versatile units are especially adaptable to smaller system requirements, or for use when central system ventilation requires augmentation. They offer quiet, stable performance, high efficiencies and the non-overloading characteristics of the largest "Buffalo" Fans. A lightweight package, they can be quickly and easily installed indoors, outdoors or as power roof ventilators. Available in capacities from 500 to 20,000 cfm (capacity can be modified at any time by changing motor or fan pulleys).

"Buffalo" Belted Vent Sets may be the economical answer to *your* smaller system ventilation needs. Contact your nearest "Buffalo" Engineering Representative, or write for Bulletin 3720-A.

Every "Buffalo" product features the famous "Q" Factor — the built-in QUALITY that provides trouble-free satisfaction and long life.

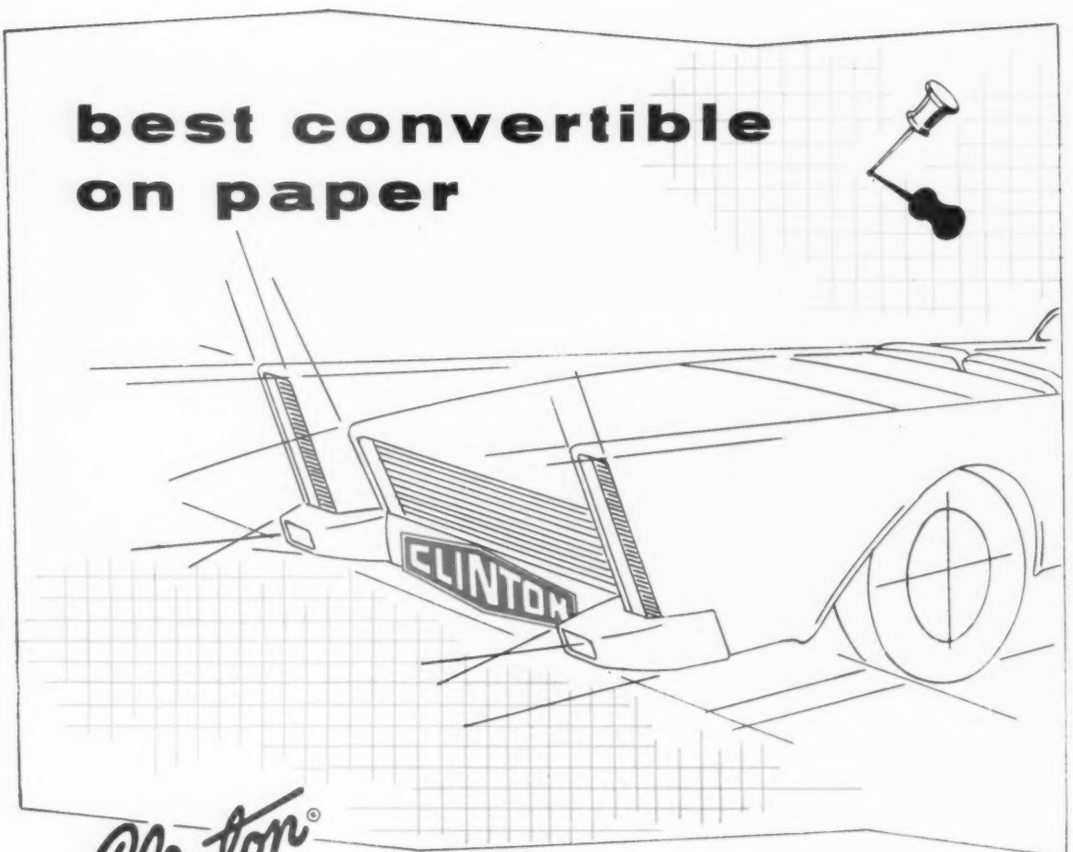
BUFFALO FORGE COMPANY

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING
FORCED DRAFT COOLING HEATING PRESSURE BLOWING

best convertible on paper



Clinton® enzyme conversion starch

Clinton's "convertible" starches, 3011 and 3021, convert uniformly to give you desired penetration . . . increased strength . . . better printing surface. And, since 3011 and 3021 convert well at high solids levels, they give efficient coating . . . from application to drying.

No wonder so many leading papermakers use Clinton enzyme conversion starches. They convert prospects to customers!

. . . and remember technical service in connection with your specific problems is available without obligation.

Quality products

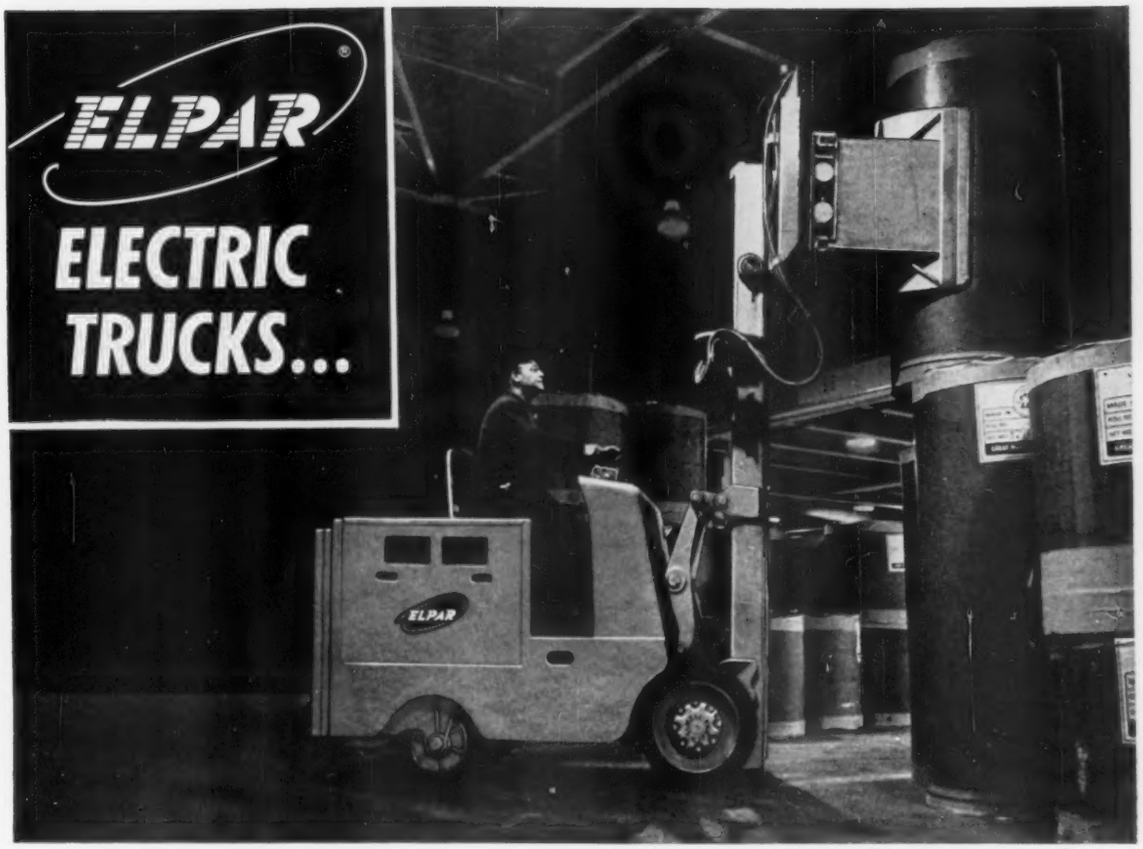
FROM THE WORLD'S CORN CENTER

CLINTON

CLINTON CORN PROCESSING COMPANY
CLINTON, IOWA

ELPAR

ELECTRIC TRUCKS...



ELPAR clamp truck at Great Northern Paper Company.

Twice the Life . . . 1/3rd the Operating Costs

In buying power industrial trucks, look beyond initial costs—and you'll discover these overwhelming advantages of ELPAR electric trucks:

- ELPAR electric trucks last at least twice as long as gas trucks operating under comparable conditions. Thus, when *all* initial and replacement costs are added up, ELPAR trucks actually *cost less to buy.*
- ELPAR truck operating and maintenance costs are only one-third those of comparable gas models. Based on 2,000 hours of operation, this means an average saving in direct operating costs of over *$1,200 per truck per year.*

These facts are based upon actual case studies from a number of plants. They explain why 75 of the 100 largest U. S. corporations now are using ELPAR trucks . . . and why more and more companies are converting their fleets to ELPAR electrics.

Learn how ELPAR trucks can make short work of your toughest materials handling problems —with an almost unbelievably high bonus of savings . . .

SEND FOR YOUR COPY

of the ELPAR *Lift,* "Gas vs. Electric Trucks."

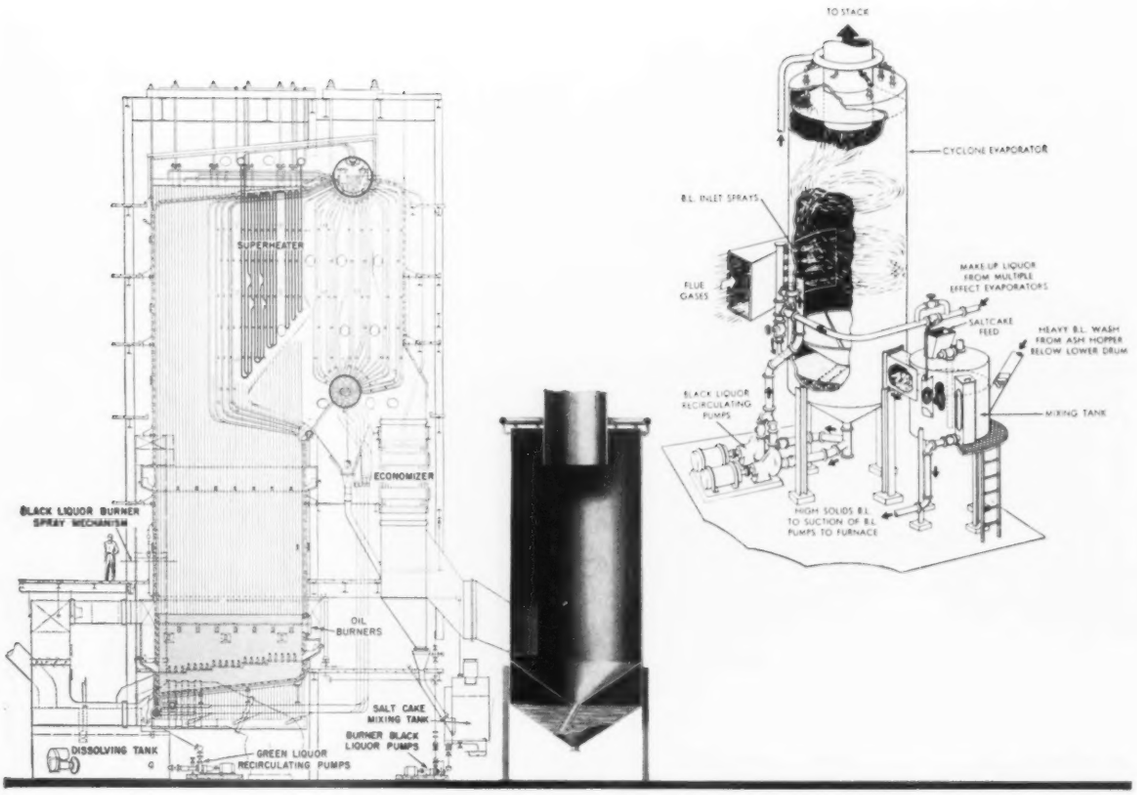
ELPAR

ELECTRIC TRUCKS

THE ELWELL-PARKER ELECTRIC COMPANY

4545 St. Clair Avenue • Cleveland 3, Ohio

Twice the Life . . . 1/3rd the Operating Costs



Proved in Use . . . Accepted by Industry . . .

B&W Cyclone Evaporator Improves Recovery System at Low Cost

The Cyclone Evaporator, an exclusive B&W development introduced in 1946, has received wide acceptance in the kraft pulp industry. Dependable, efficient performance has proved this unit a superior contact evaporator for service in the recovery of heat and chemicals from black liquor.

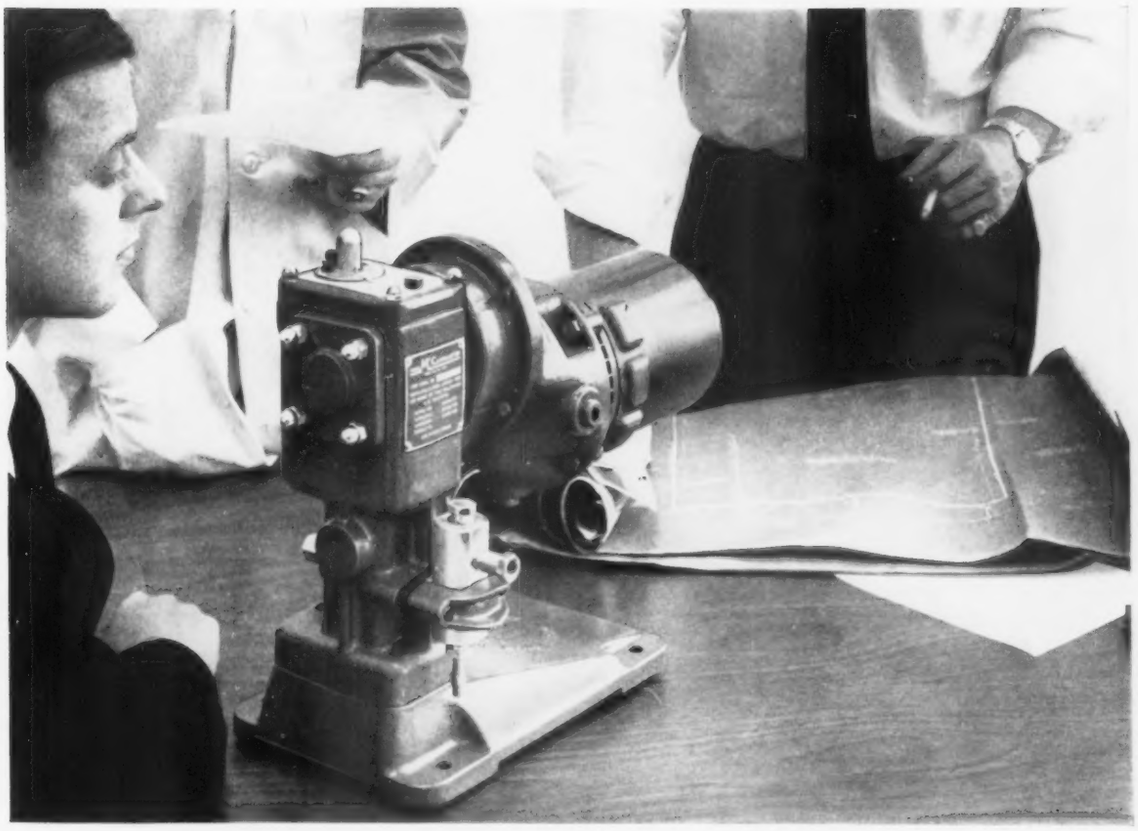
High availability, no black liquor carryover, low maintenance, absence of moving parts, and low capital cost have contributed to the selection of the Cyclone Evaporator for recovery units sized between 66 and 550 tons operating capacity. The simplicity of the design makes possible great flexibility of equipment arrangement. The Cyclone Evaporator may also be arranged for outdoor installation, thereby reducing building costs.

B&W Cyclone Evaporators utilize the heat in the flue gases to concentrate liquor solids prior to burning in the furnace. Hot flue gases enter the Cyclone tangentially at high velocity to establish the cyclonic action. Black liquor is introduced at the tangential inlet. Additional liquor is recirculated to wall wash nozzles, located at the top of the Cyclone, to continuously wash the inner walls of droplets of liquor thrown against them by cyclone action of the gas and liquor. The collected liquor droplets flow by gravity to the integral sump for recirculation.

Dependable, continuous service is essential in all parts of a recovery unit. B&W Recovery Units, with B&W Cyclone Evaporators, have proved their value for efficient chemical and heat recovery with low-cost operation. The Babcock & Wilcox Company, Boiler Division, 161 East 42 Street, New York 17, N. Y. P-808

BABCOCK & WILCOX

BOILER DIVISION



You're looking at a new metering pump that offers greater accuracy, takes less space

Meet the new McCannameter!*

Here you see management, laboratory and process personnel getting acquainted with a packless pump that provides accurate metering and proportioning over a wide output range. Each is interested in its new compact design that takes only ⅓ the space previously required. Each likes the continuous flow characteristics available through the entire capacity range. Capacity is adjustable while in operation . . . pumping at pressures up to 2500 psi. The McCannameter is available with either Teflon-faced diaphragm or metallic bellows, depending on your needs.

The new, improved McCannameter is ready to provide these same benefits in your industrial process, pilot plant or laboratory. It assures you of precision and dependability. To really get acquainted, send today for full information. * PAT. APPLIED FOR

SEND FOR NEW BOOKLET
"McCannameter—The Meter That Pumps" gives the inside story of precision, versatility and reliability. Write for your free copy of Booklet No. 302.

HILLS-McCANNA COMPANY
4624 West Touhy Avenue, Chicago 30, Illinois
Specialists in Diaphragm Valves and Proportioning Pumps

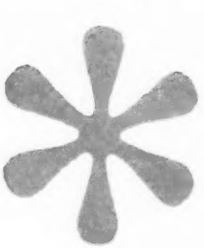
hills-mccanna company
THE PEOPLE WHO KNOW AND CONTROL FLOW

Now, Through Cyanamid Research...

You need 30% to 60% less Wet-Strength Resin with Cyanamid's

New **HE*** Process For Resin Economy!

...Available to all paper manufacturers



**HE high efficiency process for resin economy... patents applied for by American Cyanamid Company.*

Intensive field trials by Cyanamid have thoroughly proved that an average of 40% *less* wet-strength resin can produce papers fully equivalent in wet-strength properties. Not only does this new "HE" Process provide unprecedented reductions in resin costs, it also provides a means of producing "super" wet-strength papers with properties never before obtainable. Another benefit is the widened application range for melamine resins, permitting their use in many mills for the first time.

The new economies of this resin-saving process are available to all paper manufacturers. Full details on the new "HE" Process and its licensing can be provided by your nearest Cyanamid Paper Chemicals representative. An appointment will be made at your request.

ANOTHER EXAMPLE

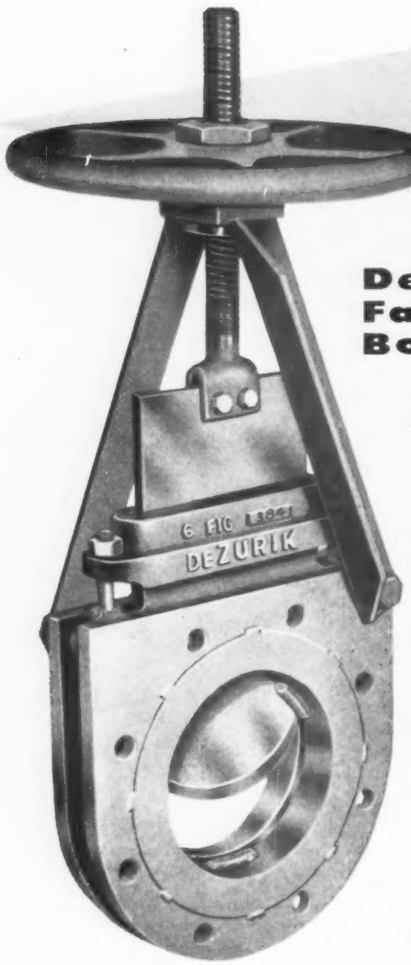
. . . of the improved processes and products resulting from Cyanamid Paper Chemicals research. The Cyanamid line of paper chemicals is the largest in volume and variety offered by any manufacturer.

CYANAMID

AMERICAN CYANAMID COMPANY

Paper Chemicals Department, 30 Rockefeller Plaza, New York 20, N. Y.

In Canada: North American Cyanamid Limited, Toronto and Montreal



LOW COST LOW UPKEEP

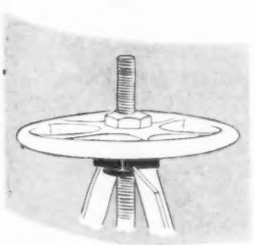
DeZurik Fabricated Bonnetless Knife Gate Valves

You'll want the advantages which DeZurik Knife Gate Valves can give you on stock lines. Their low first cost, lower maintenance costs, longer life all add up to greater value for every valve dollar.

Usual construction consists of carbon steel flanges with a stainless steel facing ring on each flange extending out to the bolt circle. The body chest, seat ring, gate and all other wetted parts are of stainless steel. This consrruction offers excellent corrosion resistance; various other combinations of material are also available.

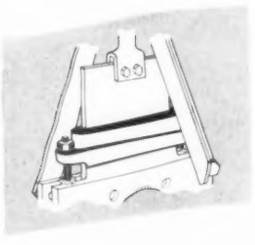
The gate is full width at the upper end and extends through the packing gland, eliminating the bonnet cavity usually found on gate valves Heavy ribs join the flanges into one solid unit which will not distort and bind the gate when subjected to piping strains. The gate is made of heavy plate to prevent distortion and buckling under line pressure.

For more information on DeZurik Fabricated Bonnetless Knife Gate Valves, write DeZurik Corporation, Riverside Road, Sartell, Minnesota.



A large yoke head provides liberal bearing area for the operating nut. The 18-8 stainless steel stem has double-pitch threads for fewer turns of the hand-wheel and less wear on operating parts.

Hand-wheel, lever, cylinder and positioner operated models for throttling are also available.



The external ni-resist stuffing box is corrosion resistant to both acid and alkaline services. Its inverted design is self-aligning, eliminating side pressure on the gate and lowering the frequency of stuffing box adjustments.

The full-width top end of the gate extends through the gland, eliminating the usual bonnet cavity.

Heavy positive blocks guide the gate; they cannot break off to damage pumps or other equipment.

The lower end of the gate is sharpened to shear through fibers or other solid material in the flow.

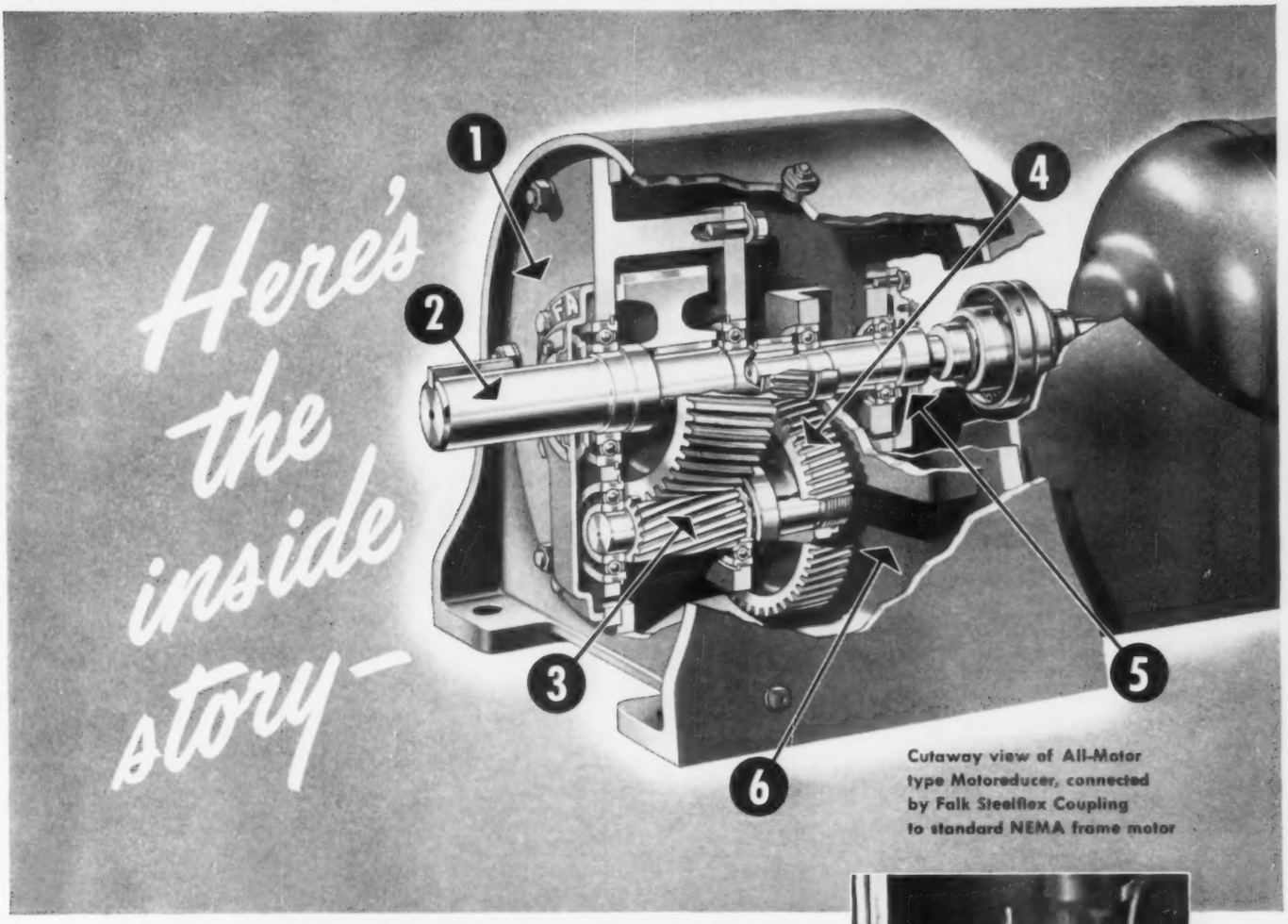
The gate, and all other wetted parts, are stainless steel or other corrosion resisting material according to requirements.

The round port bottom eliminates the "corner cavities" of straight-bottom gate valves where solid material can pack and interfere with the full descent of the blade, preventing shut off.

Clean-out plates are unnecessary on DeZurik Gate Valves!

DeZurik Gates Valves are available in sizes 3" to 24"; in wafer pattern (illustrated), standard gate valve face-to-face and short face-to-face (intermediate to wafer and standard dimensions).

DeZURIK CORPORATION
SARTELL, MINNESOTA



Cutaway view of All-Motor type Motoreducer, connected by Falk Steelflex Coupling to standard NEMA frame motor

WHY Falk Motoreducers give better service—have longer life

Here is the "inside story" behind the all-steel All-Motor type FALK Motoreducer's universal reputation as a gear drive unmatched in quality, efficiency, dependability, ease of maintenance and long life. These "In-built" factors are—

1 **ALL-STEEL HOUSINGS.** Rugged, strong, rigid...all parts are manufactured from heavy steel plate, formed and welded in the Falk Weld Shop.

2 **LARGE OVERHUNG LOAD CAPACITY.** Large shafts, oversize bearings...rigid mountings with wide bearing spans to handle maximum applied loads.

3 **PRECISION GEARING.** Heat-treated alloy steel gearing, precision cut and shaved after heat treatment to eliminate distortion. Quiet, crown-shaved pinions.

4 **EXTRA-CAPACITY GEARING.** Special extra-capacity gear-tooth form with larger contact area gives greater strength, higher load-carrying capacity.

5 **SEALED HOUSINGS.** Splashproof, dustproof, oil-tight construction. Dual closures and one-way vents keep oil in, dust and moisture out.

6 **POSITIVE LUBRICATION.** Large sump capacity...oiltight construction assures clean lubricant...revolving elements lubricated by direct dip.

When you buy or specify the All-Motor type FALK Motoreducer, you get all these—plus the tremendous advantage of full interchangeability of motors. Switch motors as desired—use any make, style or type of standard foot-mounted motor within the unit's AGMA rating—with a minimum of difficulty or "down time."

Available in sizes up to 75 hp—*with or without motor*—from convenient factory, field or distributor stocks, from coast to coast. **Write for Bulletin 3100.**

60,000 HOURS WITHOUT A FAILURE!

Sixty thousand hours is a lot of hours—but the FALK Motoreducer in the unretouched photo above has served that long without failure or need of repair.

This 3 hp unit is one of over 60 FALK Motoreducers in daily service in an Eastern plant of a large milling company, whose president says, in part:

"One of the main advantages of FALK Motoreducers is their adaptability to any motor. Reducers and motors can be easily interchanged....Our service records confirm the wisdom of our choice of FALK equipment as our standard."

FALK ...a good name in industry

THE FALK CORPORATION, MILWAUKEE, WISCONSIN

MANUFACTURERS OF

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

How to simplify control problems

Keep systems flexible, carry small inventory, cut maintenance cost with the **Bailey Building Block Method** of instrumentation and control.

What is the Bailey Building Block Method? It's using standardized Bailey measuring, transmitting, and controlling components and combining them into any system you need. Components can be added as needed . . . removed and reused elsewhere . . . recombined into another system when the need changes. It's flexibility plus!

It's all based on the simple fact that a Bailey instrument or control component doesn't care if the measured variable is tank level, digester temperature, or paper room humidity, to pick just three of a mill full of examples. System components —transmitters, receivers, relays, selector stations, power units—are standardized for multi-purpose use.

A spare component can be used in any one of many systems. Gone are delays waiting for shipments of special parts. Gone are large inventories of spares and parts. Simplified is the training of men for maintenance.

There are many exclusive features and advantages of the individual components used in the Bailey Building Block Method. And there's much more to the Building Block story itself.

For further details, write to our Pulp & Paper Division. Our engineers will be glad to prove how the Building Block approach will save you money and simplify your instrument and control problems.

P39-1

BAILEY METER COMPANY

PULP AND PAPER DIV., 1084 IVANHOE ROAD, CLEVELAND 10, OHIO

In Canada—Bailey Meter Company Limited, Montreal

BAILEY BUILDING BLOCK METHOD RESULTS IN: FLEXIBILITY, SIMPLICITY, ECONOMY

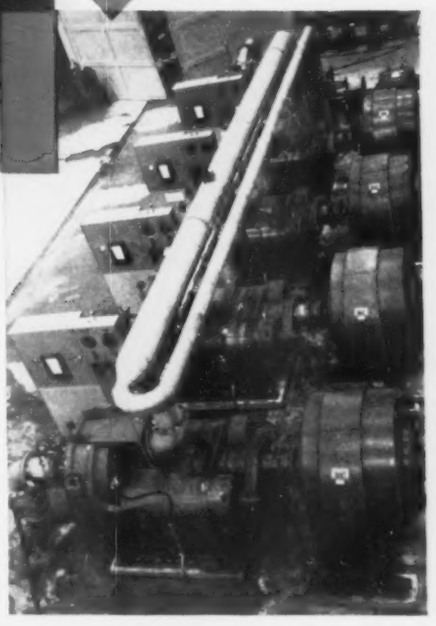
BAILEY METERS

DOUBLE the refining area—DOUBLE the work of conventional refiners . . .

E.D. Jones **DOUBLE-D** WITH DOUBLE EQUA-FLO EFFECT

The clean, sturdy compactness of the Double-D requires a minimum of floor-space: it can be located almost anywhere.

Four 42" Double-D's in line serve the big new Kraft machine at International Paper's Mobile, Ala., plant. Note simplicity of piping — no special fluming or flow-boxes needed.



Not only does the amazing Jones Double-D refiner do twice the work of conventional refiners — not only does it provide two stages of refining in one pass through the machine — not only can it, if need be, defiber in the first stage and thoroughly refine in the second — but mills where it has been tried and proved for over two years report that it produces stock of equal or better quality than similar machines, even on hard-to-work stock.

Fully-pressurized, economical of floor-space, horsepower and maintenance, the Double-D is very clean in its dealing with stock; and will give any degree of refining from hydration to severe cutting. Has many other advantages. Ask your Jones representatives, or write today for Bulletin EDJ 1083.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

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Pittsfield, Massachusetts

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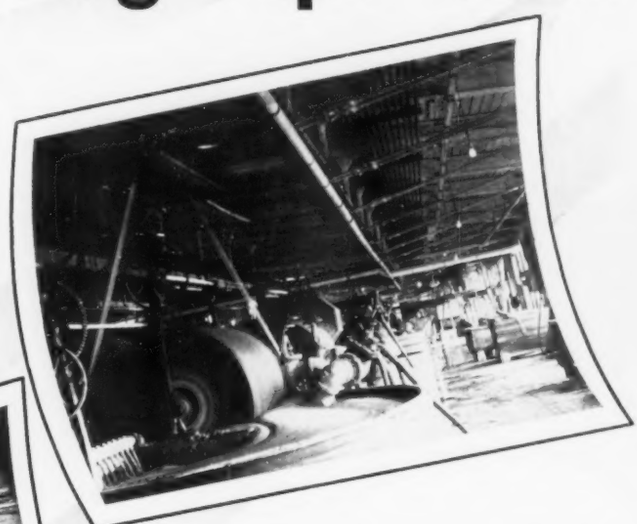
US RUBBER

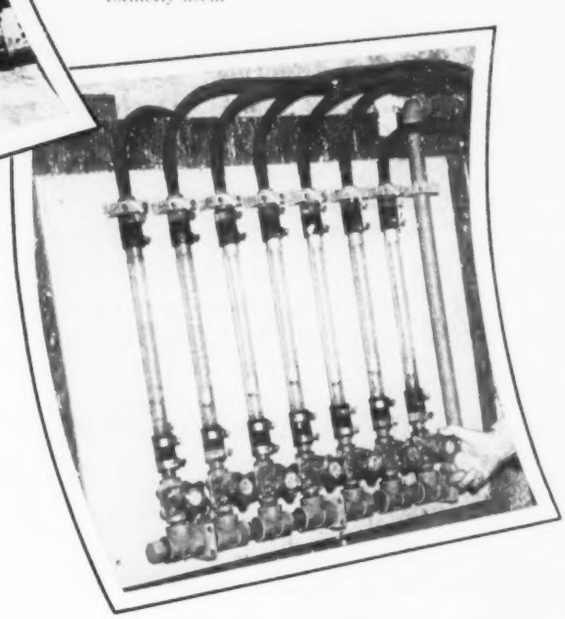
USCOLITE PLASTIC PIPE

In the Kalamazoo River Valley —
Leading Paper Mills

"Uscolite Pipe is much easier to install," says the chief pipefitter of a large paper mill in the Kalamazoo Valley. And so far, its upkeep cost is nil because even after a year's service there's been no corrosion from chlorine bleach. Metal pipe lasted hardly six months. Adds the chief pipefitter, "We recommend Uscolite pipe to anyone with similar installations." Photo at right shows some of the 1500 feet of Uscolite used in the chlorine bleach lines of this mill.

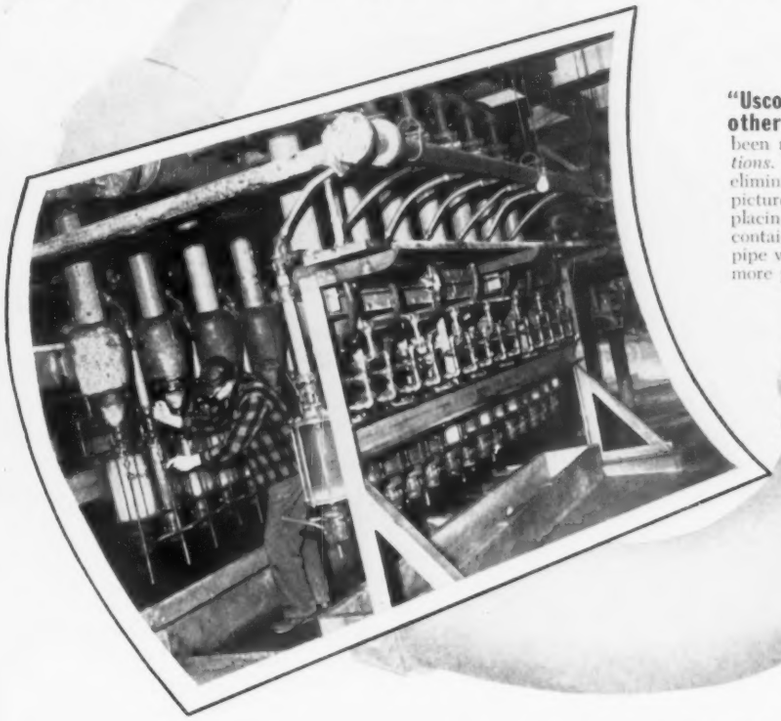


"Uscolite shows no deterioration after 3 years," says executive of another large paper mill in the Kalamazoo Valley. The picture below shows Flowrator panel of Uscolite pipe which regulates flow of chlorine to paper vats to provide bacterial control. The Uscolite pipes are immune to corrosion, contamination, sweating, and are cleaner than the metal pipes formerly used.



"No maintenance problems with Uscolite Pipe," says an official of the Allied Paper Corporation's mill in the Kalamazoo Valley. "We use Uscolite in our sediment removal system, chlorine bleach lines and glue system." Previous pipes usually lasted only several months, but Uscolite pipe has been on the job for 2 years so far and shows no sign of corrosion yet. Photo above shows Uscolite pipe fittings and valve of Sveen glue machine.

choose Uscolite because



"Uscolite costs far less to install than any other pipe," says a big mill, "and there has been *no failure in any of our Uscolite installations.* That means all our repair time has been eliminated." Centrifugal separator barrels (in left picture) are made of Uscolite 6-inch pipe, replacing brass pipe which eroded badly from dirt contained in the swirling water. Stainless steel pipe was rejected because it cost nearly 6 times more per foot than Uscolite pipe!

Which USCOLITE pipe best serves your needs?

Uscolite CP: styrene-acrylonitrile-butadiene copolymer, good resistance to strong acids, active chemicals; higher impact strength and operating temperatures.

Uscolite RV: an unplasticized, unmodified polyvinyl chloride (PVC); higher resistance to strong oxidizing acids and chemicals; good impact strength.

First used in the Kalamazoo Valley three years ago, Uscolite® plastic pipe has been so successful in carrying chemical solutions, *without being harmed by corrosion and erosion,* that more than a dozen paper mills in the Valley now use Uscolite pipe and *replace metal pipe* with Uscolite as soon as the metal pipe wears out. Uscolite pipe and fittings—including elbows, tees, flanges, couplings, valves—are obtainable at any of our 28 District Sales Offices each staffed with factory-trained engineers, at selected "U.S." distributors, or write us at Rockefeller Center, New York 20, N. Y.
In Canada, Dominion Rubber Co., Ltd.

Mechanical Goods Division

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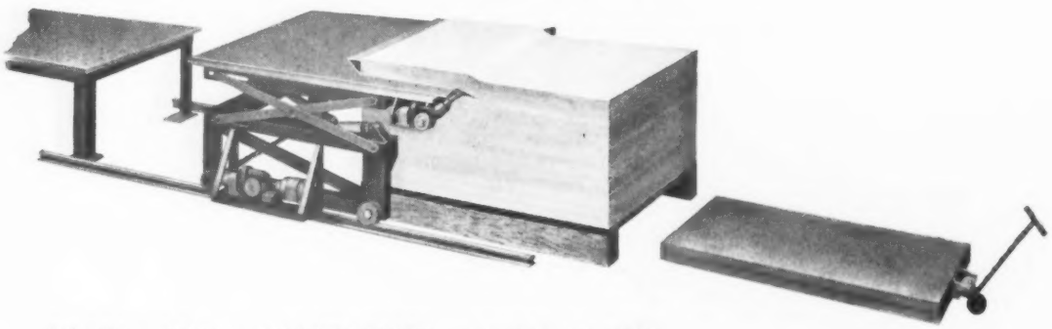
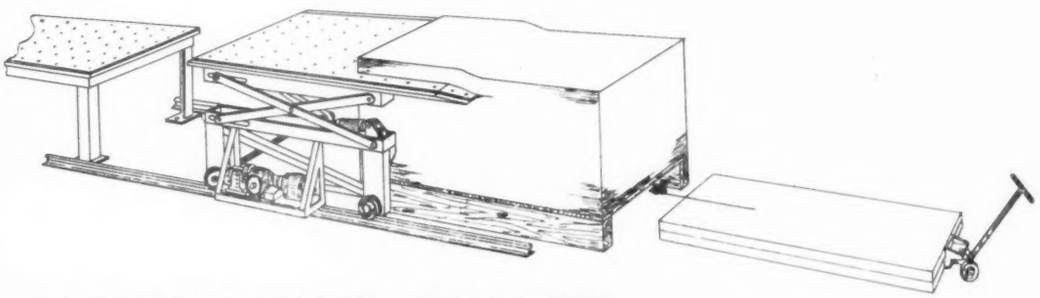
IMPROVE YOUR PAPER TRIMMER OPERATION WITH AMERICAN'S STACKING AND UNSTACKING EQUIPMENT



PAPER REAM UNSTACKER—Model M-1191

Handles sheet sizes up to 60" x 78". Skid loads up to 72" high. Requires no foundation or pit wick. Easily moved if plant layout is changed. Unit shown with American Portable Hydraulic Scissors Lift. Lifts can be furnished to fit any type skid. One man operates complete unit.



PAPER REAM STACKER—Model M-1190

Handles sheet sizes up to 60" x 78". Skid loads up to 72" high.

Model M-1187 Combination Stacker-Unstacker for uncoated papers and board is not shown. American also has a complete system for cartoning lines including package placement, carton sealing and stacking.

FOR ADDITIONAL INFORMATION! CALL—WIRE—WRITE

American MANUFACTURING COMPANY INC.

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When you need

BASIC CHEMICALS FOR PAPER

look to General Chemical!

Here's why...

As a leading supplier of paper-making chemicals, General Chemical maintains a coast-to-coast network of plants and stock points to serve you. You're sure of prompt deliveries... dependable service and supply . . . uniform quality . . . and skilled, experienced technical service whenever you need it. So specify *General* for all these chemicals in your mill:

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- Salt Cake (Sodium Sulfate)
- Sulfuric Acid
- Hydrochloric Acid (Muriatic)
- Sodium Silicate
- Sodium Bisulfite, Anhydrous
- Sodium Sulfite, Anhydrous
- Chrome Alum (Chromium Potassium Sulfate)
- Aqua Ammonia
- Nitric Acid
- Sodium Thiosulfate (Hypo) $5H_2O$ and Anhydrous
- Tetrasodium Pyrophosphate
- Trisodium Phosphate
- Sodium Tripolyphosphate
- Sodium Metasilicate, $5H_2O$ and Anhydrous
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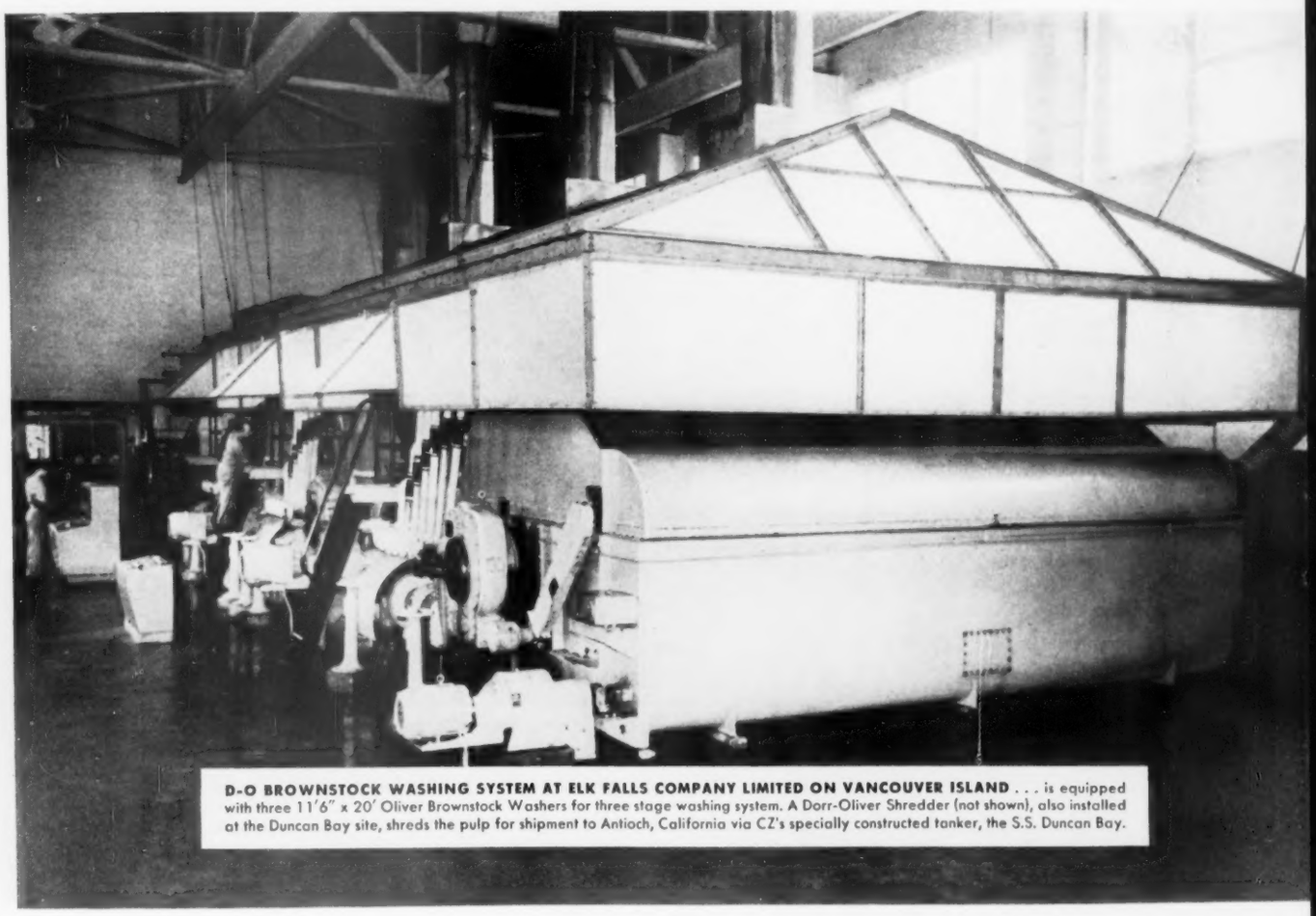
"OPERATION NOODLEPULP"

Features Dorr-Oliver Equipment in Six Major Roles

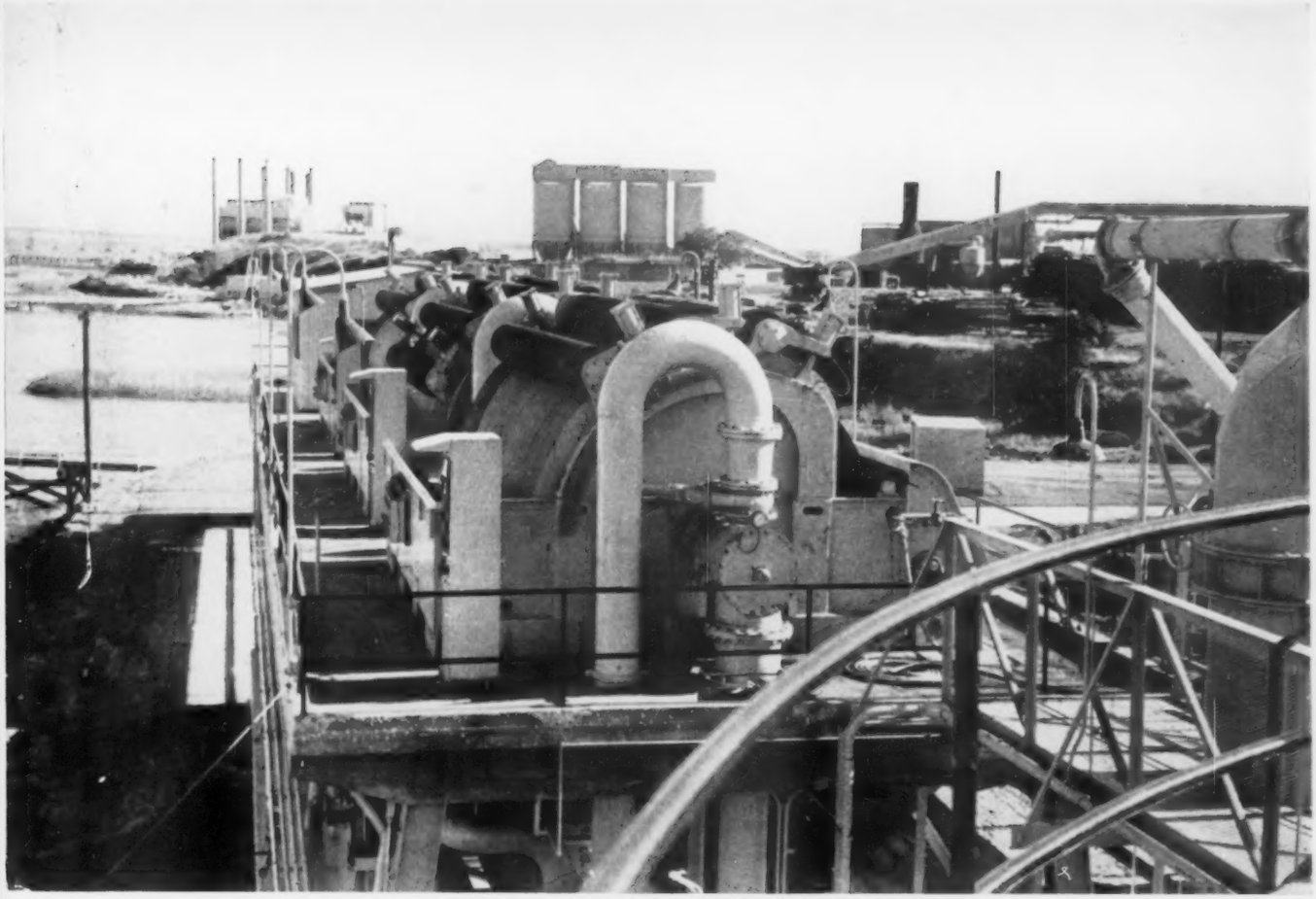
From Duncan Bay, British Columbia to Antioch, California, the significance of Dorr-Oliver's contribution to "Operation Noodle Pulp" lies in diversification and performance.

At the Elk Falls Company Limited on Vancouver Island, a Dorr-Oliver Brownstock Washing System processes pulp from Canadian forests. From the Elk Falls Co. Ltd. at Duncan Bay, B.C. the pulp is shipped via a special tanker to Antioch, Calif., where D-O Thickeners, Valveless Deckers, Ahlfors Screens, an Oliver Saveall, and a Clarifloculator have been installed in Crown Zellerbach's new 400 TPD facilities.

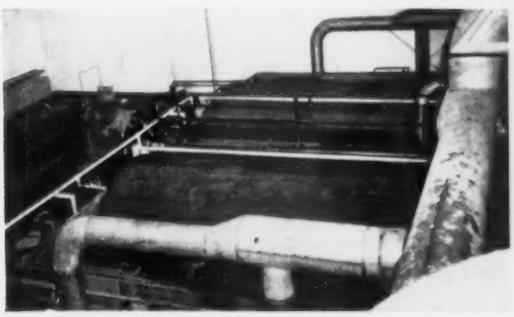
For more information on the complete line of Dorr-Oliver equipment and services for the pulp and paper industry write Dorr-Oliver Incorporated, Stamford, Connecticut.



D-O BROWNSTOCK WASHING SYSTEM AT ELK FALLS COMPANY LIMITED ON VANCOUVER ISLAND . . . is equipped with three 11'6" x 20' Oliver Brownstock Washers for three stage washing system. A Dorr-Oliver Shredder (not shown), also installed at the Duncan Bay site, shreds the pulp for shipment to Antioch, California via CZ's specially constructed tanker, the S.S. Duncan Bay.

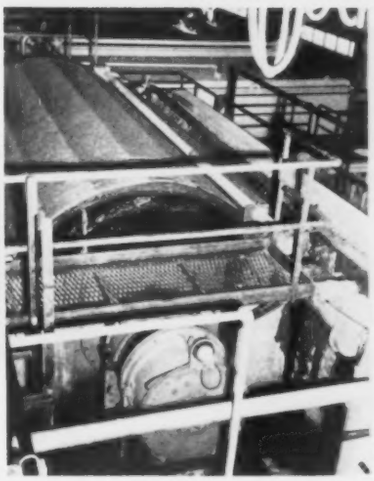


OLIVER HIGH-DENSITY THICKENERS ON THE DOCK AT ANTIOCH, CALIFORNIA . . . thicken the diluted stock pumped from the S. S. Duncan Bay to 25% consistency. Stock from these big (11'6" x 16') Thickeners is then carried to storage areas by conveyor belt and a large stacker.

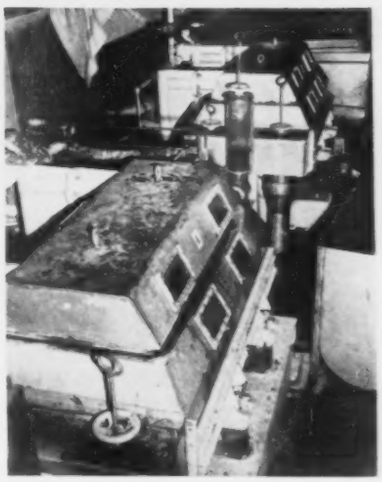


OLIVER DECKERS IN FIRST PROCESSING STEP INSIDE MILL . . . after screening stock is thickened on two Oliver 9'6" face x 16' valveless Deckers. A 24" D-O repulper conveyor is installed between the two Deckers.

DORR 120' DIA. CLARIFLOCCULATOR PROCESSES 10 MGD OF SAN JOAQUIN RIVER WATER . . . for pulp handling purposes. Chemical additives to facilitate treatment are alum and silicat-



DORR-OLIVER SAVEALL RECLAIMS FIBRES FROM PAPER MACHINE WHITE WATER . . . this 8' x 16' Oliver Vacuum Saveall, with a rubber-covered cylinder, is installed at wet end of West's second largest machine.



D-O AHLFORS SCREENS PROCESS REFINED SCREENINGS . . . these Upflow Vibrating Pulp Screens, 24 sq. ft. models, are used as part of a rescreening from primary screens.

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U.S.A.

Making the best defoamer is not enough...

It has to be the best for YOU

Every paper mill must control foam—with the greatest possible efficiency—at the lowest possible cost. And since each mill differs so widely from every other mill, Nopco's Paper Division spares no effort to make certain we have a defoamer—whether paste, liquid, or flake—that will effectively, economically control foam in *your* mill.

But making the best defoamers is not enough. Nopco's technical staff has the breadth of experience that can be invaluable to you in fitting the right defoamer to your special needs. These men will work with you in your own mill, examine samples of white water from your mill in our laboratories, or do both.

You can't be sure you've attained *maximum defoaming efficiency at the lowest cost per ton* until you have the best "team" in the business, the Nopco technicians, prescribe from the widest range of defoamers in the business—the Nopco defoamers. Write today for a free booklet on Nopco defoamers. Nopco Chemical Company, Harrison, New Jersey.

NOPCO

PLANTS: Harrison, N. J.
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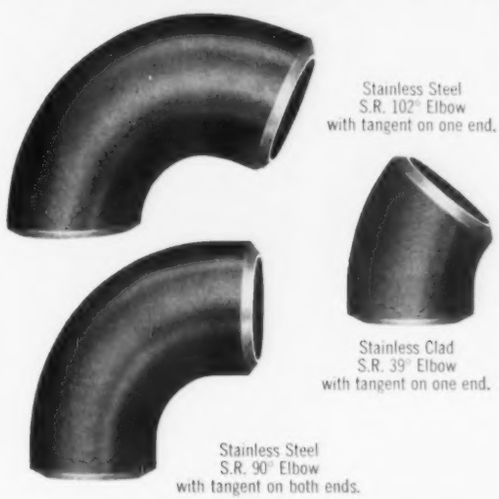
World's First Nuclear-Powered Surface Ship will have MIDWEST Welding Elbows

U. S. Navy's guided missile, nuclear-powered cruiser "Long Beach"

OFFICIAL U. S. NAVY PHOTOGRAPH

Special Fittings are "ROUTINE" for Midwest



Stainless Steel
S.R. 102° Elbow
with tangent on one end.

Stainless Clad
S.R. 39° Elbow
with tangent on one end.

Stainless Steel
S.R. 90° Elbow
with tangent on both ends.

Special Elbows (dimensions, tangents, wall thicknesses and materials) are easily provided by the exclusive and flexible Midwest method. Elbows are available in any material that can be secured as plate, which also means better delivery. Closer tolerances are inherent in the Midwest process. Quality control always exceeds Code requirements.

Shown here are three of the special stainless steel and stainless-clad elbows made by Midwest for the "U.S.S. Long Beach". All reactor coolant piping must meet extremely rigid specifications because of the difficult service. Special quality controls, such as ultrasonic testing, intergranular corrosion tests, dye checking, radiography, and ring flattening tests were used one or more times at various stages of manufacture from the raw material to the finished fittings. Special quality standards for soundness of metal, "water clear" welds, dimensional accuracy, and surface finish were satisfied.

The U. S. Navy's first nuclear-powered surface ship, the "Long Beach", will introduce a radically new concept in defense capabilities. She will operate offensively and independently of other forces under conditions of both nuclear and non-nuclear warfare against airborne, surface or under-sea opposition. In addition to equipment and weapons for detecting and destroying enemy submarines, she will carry the Navy's modern guided missiles.

The piping for the atomic reactors being designed and developed by the Westinghouse Electric Corporation will use a large number of special heavy wall stainless steel Midwest Welding Elbows. This is not the first atomic project for which Midwest Welding Fittings have been used. In fact, when the nuclear propulsion program first began, Midwest furnished special welding fittings for the "Nautilus" prototype installation at Arco, Idaho.

Whether or not you are concerned with nuclear power, Midwest Welding Fittings (both stock and specials) will do a better job for you. Ask your Midwest distributor or write us for Catalog 54, which tells you why.

MIDWEST PIPING COMPANY, INC.

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Plants: St. Louis, Clifton, N. J. and Los Angeles

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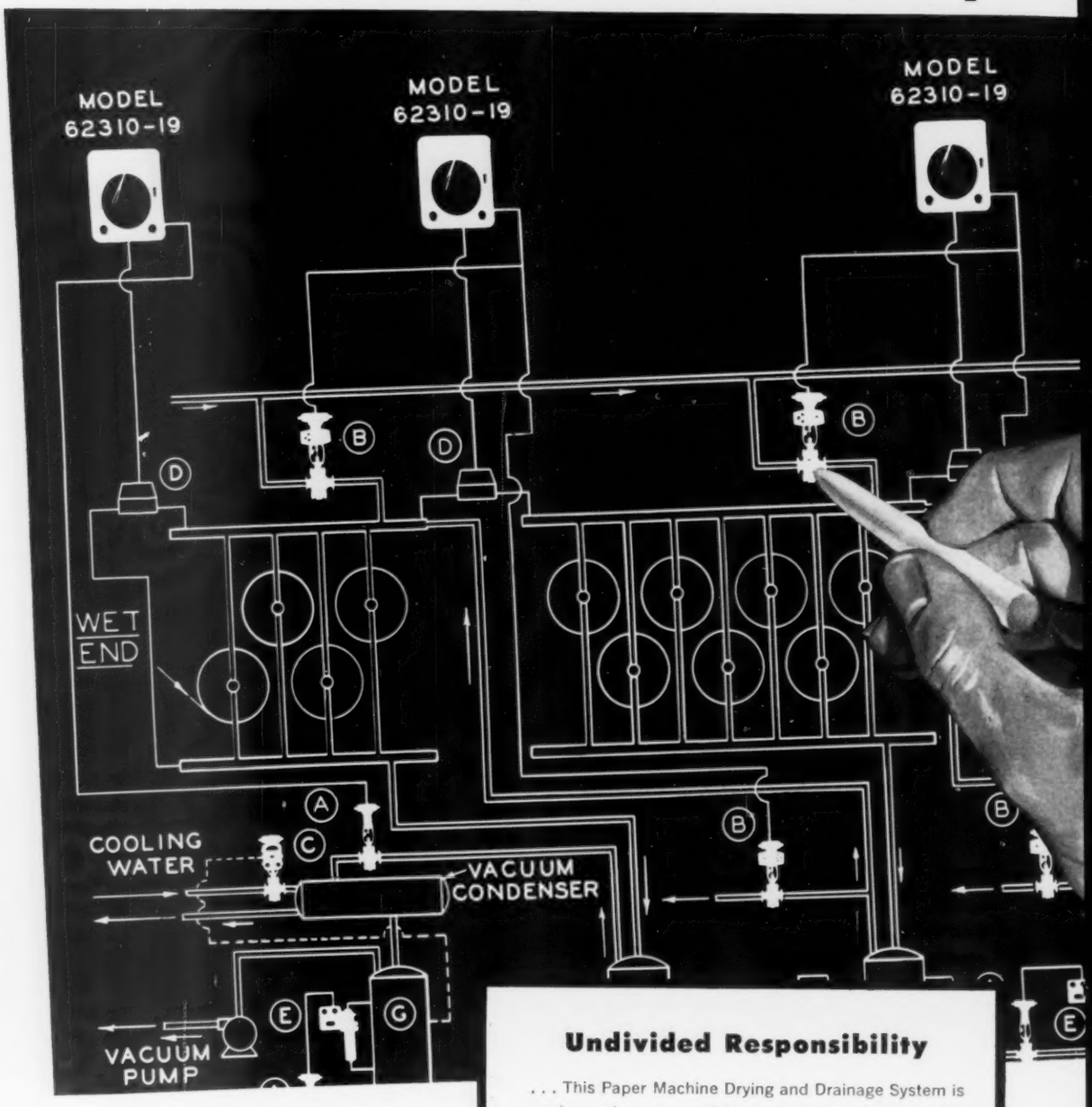
MIDWEST WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS

Increase Machine Speed and Flexibility



Undivided Responsibility

. . . This Paper Machine Drying and Drainage System is engineered as a complete package, combining all the required components into a proven, dependable system.

- Control Valves
- Level Controls
- Pumps
- Condensers
- Control Instruments
- Pressure Transmitters
- Separator Tanks
- Installation Supervision
- World-wide Service

with Masoneilan Drying-Drainage System

Improvement in heat transfer provides fully uniform sheet drying even at high machine speeds, plus extra bonus of steam economy.

Masoneilan Drying and Drainage Systems are designed to provide the optimum degree of heat transfer within the drier sections. Result: Complete flexibility in selection of machine speeds, more uniform sheet drying and increased over-all capacity.

The key to this efficiency is the *continuous* purging of *both* condensate and non-condensables, by maintaining adequate differential pressures across drier sections — assured by the Masoneilan Blow-Through System. Drier sections are rapidly cleared of non-condensables during start-up; and excess steam is relieved during radiation loads. In addition, steam is more fully utilized by cascading from dry to wet end sections in each drier group.

Send for Special Bulletin on Paper Machine Drying and Drainage Systems. Make it your first step towards improving paper quality, increasing production and achieving new steam economies.

Send for it, today.

MASON-NEILAN

Division of Worthington Corporation

27 NAHATAN STREET, NORWOOD, MASSACHUSETTS

SEVENTY-FIFTH 75 ANNIVERSARY 1883 1958

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New Orleans • Seattle • Jacksonville • Wilmington • Mason-Neilan Regulator Co., Ltd., Montreal and Toronto

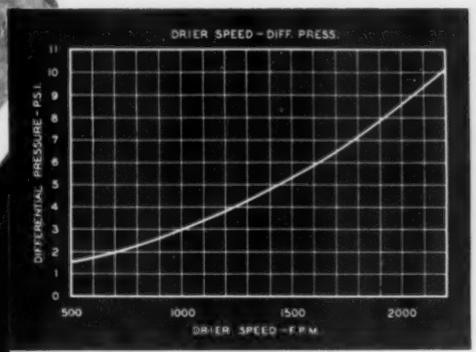


Fig. 1 indicates what minimum differential pressures are generally necessary to properly evacuate a 60" diameter drier. This is an empirical curve, but experience proves it reliable.

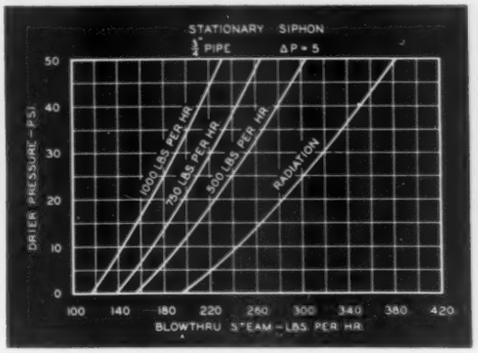
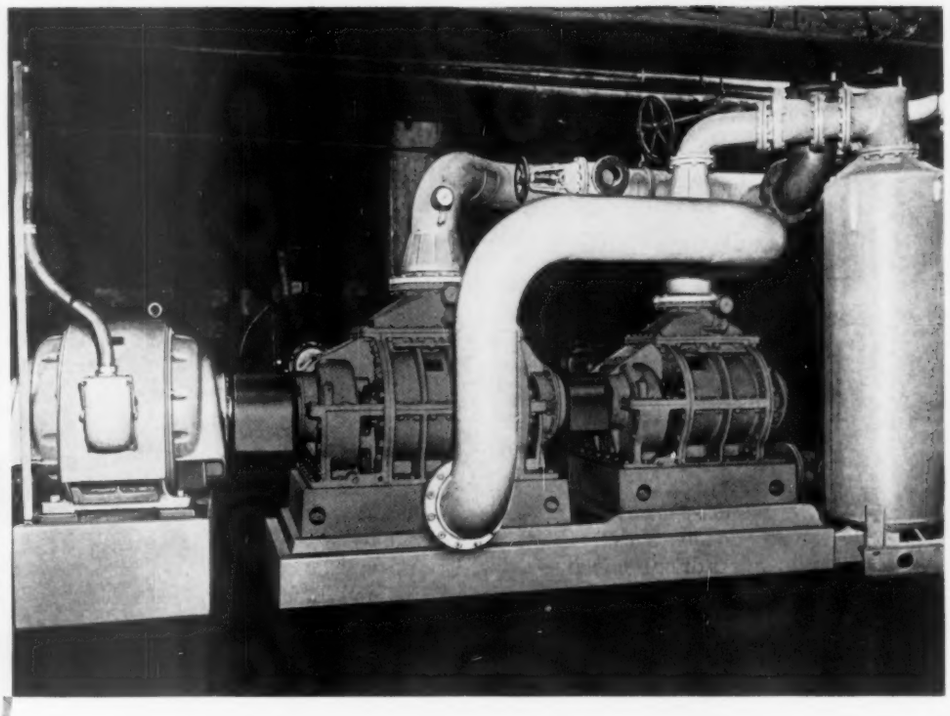


Fig. 2 shows the considerable difference in the quantity of blow-through steam when a drier is condensing and when under radiation load. These curves are also derived in an empirical manner.

MN7-34

FOR INTERNATIONAL PAPER COMPANY



Equipment purchased for this installation Two RCV-2 vacuum pumps—16x35 and 14x24 in compound arrangement, rated 7740 cfm at 22" Hg vacuum, operating at 900 RPM with 294 HP.

NEW R-C compound vacuum pump arrangement simplifies installation

With a new "straight-through" drive design for compound vacuum pump applications, Roots-Connersville has not only simplified piping arrangements but has also further reduced installation time and costs. This new development features a drive-through arrangement with the second stage pump driven directly from a shaft extension on the first stage pump. This permits the use of a standard single shaft extension motor drive. Other pump improvements provide for operation at higher speeds giving more CFM per dollar.

In addition to simplifying installation of the piping, this arrangement provides for easier servicing and maintenance of both pumps and motor. The first installation of this new arrangement was made at the Southern Kraft Division of International Paper Co. Subsequent installations have further substantiated its advantages.

Here is another reason why you can depend on Roots-Connersville vacuum pumps to deliver the finest overall performance and dependability at low cost . . . a reputation proved for generations in the country's leading paper mills.

For additional data, please refer to our section in **Chemical Engineering Catalog** or write for Bulletin VP-158

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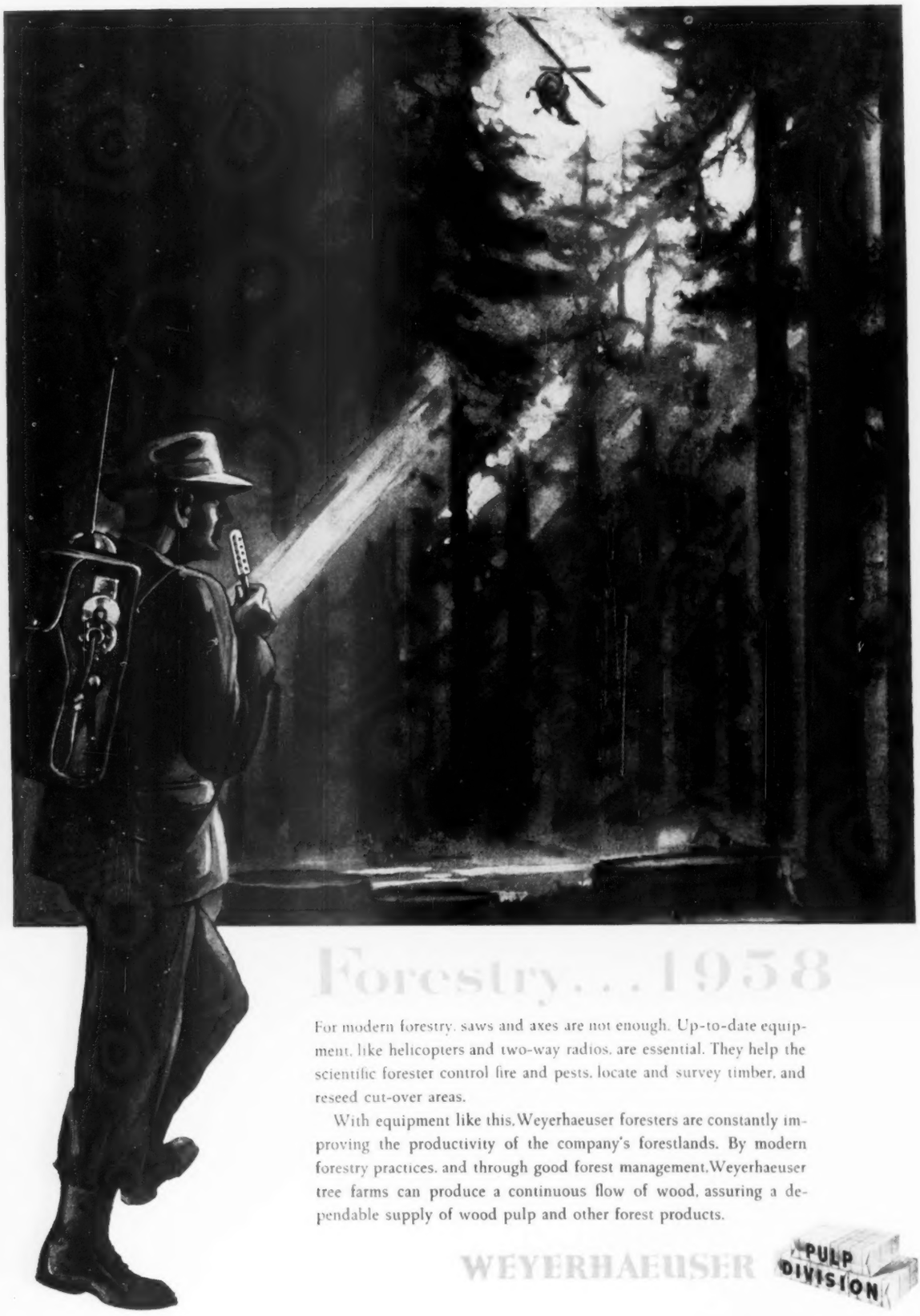

Forestry . . . 1958

For modern forestry, saws and axes are not enough. Up-to-date equipment, like helicopters and two-way radios, are essential. They help the scientific forester control fire and pests, locate and survey timber, and reseed cut-over areas.

With equipment like this, Weyerhaeuser foresters are constantly improving the productivity of the company's forestlands. By modern forestry practices, and through good forest management, Weyerhaeuser tree farms can produce a continuous flow of wood, assuring a dependable supply of wood pulp and other forest products.

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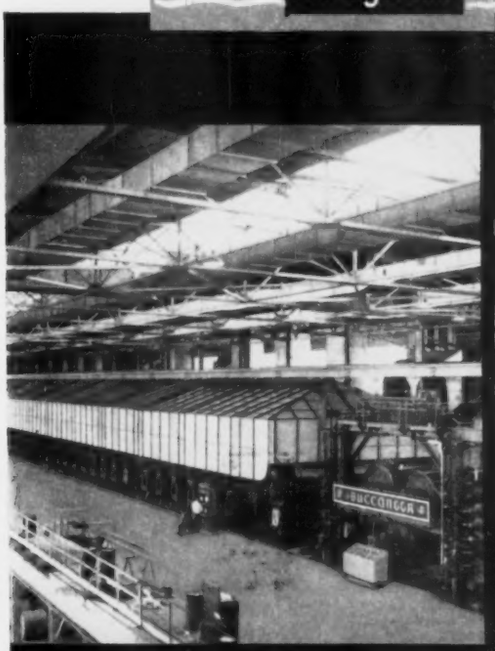
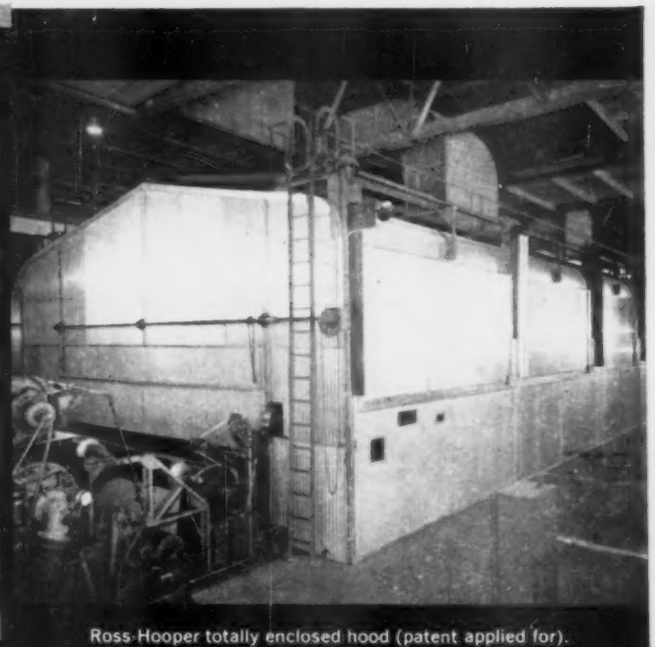


Ross open type hood



Ross-Hooper totally enclosed hood (patent applied for).

Economy under the hood...

In contrast with the precision control required in drying, baking, curing and other operations in industries other than paper manufacturing, the problem under a paper machine hood is not so much precision as economy in the production and use of tremendous volumes of hot drying air. Cost per 1,000 cfm is the major controlling factor.

The very fact that by far the majority of paper machine hoods in mills throughout North America carry the name Ross for the open type and Ross-Hooper for the 'totally enclosed' type provides fairly strong evidence that the cost per 1,000 cfm objective has been met at a satisfactory level. Efficient hoods for drying the paper is but one of the many Ross contributions to better and more economical production.

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CPPA's Fowler Says You Have Seen . . .

Last of Steady 100% Production

- Luke, with U.S.A. greetings, calls for world leaders
- Wing says technical advances must cost less money
- New pulping processes highlight Montreal development

By ALBERT W. WILSON

Editor, PULP & PAPER

● The pulp and paper industries of the entire world are experiencing "a return to normality, in an economy of abundance, after 19 years of abnormality."

That's the way Robert M. Fowler, permanent president of the Canadian Pulp and Paper Assn., summed up the situation today in Canada, the U.S.A., United Kingdom, Scandinavian countries—naming them in that order—and all other producers in the world.

He scorned such phrases as "a flattening out," "a rolling adjustment," "a pause for digestion," "a less mild contraction than 1949 and 1954" and he especially spurned "temporary recession"—both words are wrong, he said.

The veteran head of the Canadian group, his hair turned to silver since he took over the job, said the industry in Canada in 1957 went through "a great and permanent change."

"I doubt if anyone in this room will live to see a return, except for brief intervals, of full capacity operations of the past decade," he said. "The gap between capacity and demand will be normal."

Speaking of Russian achievements, he commented: "In the complacency of what we thought was an assured technological lead, we confused high standards of living and material prosperity with intellectual stature." Business leaders, as well as politicians and educators, must face up to this "ultimate struggle," he added.

Long-term prospects for pulp, paper and paperboard industries and Canada "are bright," he said. "The world will need our products in increasing quantities."

Four-Point Program . . .

He told a jampacked luncheon audience (next year there will be more room when the convention moves into the new Queen Elizabeth Hotel) these four specific things should be done:

1. Look to productive efficiency. It can't be done by "niggling and short-sighted paring of costs." More must be spent to increase efficiency and "reduce costs by greater efficiency."

2. Cooperate with responsible labor leaders. Annual wage increases "can no longer be regarded as an automatic right, but management must recognize legitimate needs and grievances of labor." This is not "an annual auction sale or prize fight—it is a partnership."

(Every day of the convention, delegates heard the 11-week strike closing British Columbia mills at estimated cost of $55,000,000 in sales was about to be settled. Long-distance phones to Vancouver brought encouraging news. The last day, as Mr. Fowler spoke, it was—with a 7.2% wage hike retroactive to last June 30 and an overall boost to 9½% beginning next July. Eastern Canadians expect wage pressures will be on them now.)

3. Collaborate more closely with government. For each dollar industry makes, the federal government takes 47 cents, and lesser governments get cuts, too. "We cannot go it alone in this game," said Mr. Fowler. The government must realize "our problems" whether they involve taxation, tariffs or foreign trade.

4. Companies must again develop their "rusty" merchandising skills—"We must use them as individuals, but I hope with intelligence with regard to their effect on others in the industry." (His stressing of individual action was

Highlights of Fowler, Luke and Wing Reports at Canadian Annual Meeting

About 2,500 management, sales and technical leaders of the pulp and paper and paperboard industries and allied fields attended the annual meetings in Montreal.

Highlights of the annual report by CPPA President Fowler:

1. The industry has returned to normality. None living today will see full capacity operations again, except for brief intervals.

2. Long term prospects are bright. World will need more Canadian pulp and paper.

3. The industry must increase productive efficiency, cooperate with responsible labor, work closely with government and develop merchandising skills.

4. Capacity is still expanding too rapidly.

Highlights of greetings from retiring APPA President Luke:

1. Lend your (Canadian) talents to world industry leadership.

2. Develop new products and uses.

3. Don't grow too fast.

Highlights of Canadian Technical Section Chairman John W. Wing's report:

1. Increased productivity must now be achieved with reduced capital expenditures.

2. Make more use of Pulp and Paper Research Institute of Canada.

3. Learn from other industries.

4. Develop and expand more technical studies and programs.

obviously a response to charges by politicians on the U.S. side of the line of an alleged Canadian "newsprint monopoly.")

"No Ordinary Breeze" . . .

In discussing the present industry position, he quoted Douglas W. Ambridge, president of Abitibi, as saying "this is no ordinary breeze" as compared with the economic "squalls" of 1949 and 1954. It is important and necessary for industry leaders to face the facts, said Mr. Fowler.

However, if it had not been for the West Coast strike in November and December, production of the Canadian industry would have set a new record in 1957. It turned out to be the second best year to 1956. Newsprint production was almost exactly the same in 1957 and 1956 but Canadian market pulp sales were down 6%. Fine papers and specialty papers hit new records for Canada, but board and wrapping declined slightly.

The Canadian newsprint industry will produce about the same tonnage in 1958 as in 1957 and 1956, he predicted. But this will be 85% of capacity as compared with 95% in 1957 and 104% of rated capacity in 1956. In other grades the story is similar.

Expansion Still Too Rapid . . .

"We still have too rapid an expansion of capacity," he warned. "Too many people have been having the same bright ideas at the same time. If the corrective process is not widely done, it can produce serious reverses for companies involved—perhaps no more than they deserve—but also serious hardships for innocent people. This is the challenge industrial leaders face."

A more complete report on the state of the entire North American industry was released two days before his speech. The Montreal papers, eager for words from this knight in armor for the Canadian industry—whose continuing verbal joists with American politicians and American newspapers are front page copy—featured this report.

In it, Mr. Fowler said the entire North American industry is generally healthy. In Canada, pulp and paper is running at higher rates than other industries, he pointed out. He pointed out more than two-thirds of the Canadian pulp and paper was sold abroad in "soft" U.S. dollars. Meanwhile, there was no increase in Canadian demand for U.S. pulp and paper products.

(See The Last Word Page of this issue—page 176 for comment on American-Anglo-Canadian moves at Montreal meeting and other developments).

Sankey . . . . Hill . . . . Read . . . . Gallay . . . . Ambridge

Should Research and Control Be Combined? Should Mills Conduct Fundamental Research?

Blue Ribbon Panel Debates These and Other issues

Wit, wisdom and some marked differences of opinion enlivened a "blue ribbon" panel discussion of research's place in this industry at the Canadian industry's annual convention in Montreal. A number of delegates told PULP & PAPER they thought this was the best session of the three days.

The panel was one of the most distinguished the Canadians ever put on the firing line:

DOUGLAS W. AMBRIDGE, president, Abitibi Power & Paper Co. Ltd.

DR. ALLAN C. HILL, executive vice president, Anglo Paper Products Ltd. (subsidiary of the Anglo group of mills).

DOUGLAS E. READ, vice president and gen. mgr., Industrial Cellulose Research Ltd. (subsidiary of Canadian International Paper Co.).

DR. C. A. SANKEY, director of research, The Ontario Paper Co. Ltd.

DR. WILFRED W. GALLAY was moderator. He is director of research, The E. B. Eddy Co.

Here's where there were disagreements—either between panelists or panelists and members of the audience:

Should research and control be in same department or under one head?

GALLAY: "What better communication can there be than to have them combined?"

AMBRIDGE: "We can't combine them and get the best results. You can't have one head for 11 mills."

KEN C. LOGAN, research director, Anglo Paper Products: "If combined department is in one locale and has a strong leader, it may work. Usually one head is impractical."

READ: "Control dept. must have some freedom in research. If it only does routine it loses interest."

WILLIAM A. KETCHEN, Fraser Cos. technical director: "We combine control and research successfully. They can't be under the mill managers."

Should the pulp and paper companies carry on fundamental research?

AMBRIDGE: "If you are big like General Electric or Dupont you can study solid physics and have fun. Then some day you can pull it out of the file and it might be useful." (An Abitibi man in audience commented that Arthur D. Little Co., Boston, advised Abitibi to spend 15% of research funds on pioneering or basic research.)

DR. HOWARD RAPSON, University of Toronto: "All industry research should have an objective in sight, no matter what you call it."

DR. S. J. BUCKMAN, Buckman Laboratories: "There are interesting things in fundamental research that are also useful."

DR. PHILIP H. PRIOR, paper and board research and development, Albert E. Reed & Co., Ltd., Larkfield, Kent, Eng.: "The Hydrapulper started as a clothes washer, but it shred the clothes, so this led to the question: Who wants to shred things?"

Should surveys for new uses of paper start in research or in sales?

HILL: "Start in sales, then research, then sales again. It should be integrated."

GEORGE H. TOMLINSON, II, tech. director, Howard Smith Paper Mills Ltd.: "It works both ways."

AMBRIDGE: "Before it gets to research, a new project must get through our management committee. The committee is a very effective bull screen. Suggestions may go up to it through the vice presidents who are members."

Should men be transferred from research to other positions:
READ and AMBRIDGE: "Transfer of personnel is inevitable."
SANKEY: "I object like the devil to research being simply a training department for others."
(It was recalled that President Ambridge was a former control supt.)

More Comments by Panelists:
AMBRIDGE: "Think back 10 years and where would we be today if it were not for research. Take a backward look as well as a forward look. This line of thinking, we find, is the greatest tonic for our leaders."

READ: "Research must not be conducted in an ivory tower. There must be a flow of ideas from manufacturing to research. Too many calls upon research to help with current problems can upset a research program."

HILL: "There must be a flow of information from sales to research and from research to sales. Sales should cooperate in development of a research program. Its goals: 1, Improve quality of products. 2, New products for existing markets. 3, New products for newly created markets. . . . It is better economics to improve quality than to lower price."

SANKEY: "Research has five duties: 1. To understand company objectives. 2. to function as part of a team. 3. To take a long range view. 4. To take a wide range view. 5. To justify expenditures to management.

Research has five rights: 1. To be listened to, and to listen to. 2. To exist as an independent department. 3. To work with adequate facilities. 4. To be wrong (like the shortstop who makes errors going after hard balls. Things that don't work will trigger things that do). 5. To compensation and promotion equal to other departments."

Increased Productivity with Less Money Is Job Ahead, Wing Tells Technical Men

Highlights of a report by John W. Wing, retiring chairman of the Canadian Technical Section and general mgr. of Dryden Paper Co.:

"For the past decade we have been concerned primarily with increased production. Only by the expenditure of millions of dollars we were able to speed-up and modernize our mills. This was accomplished without an equivalent increase in manpower, therefore with an increase in productivity.

"Now we have to achieve the same thing with very considerably reduced expenditure. All right, how do we go about it? My suggestion is that we get right down to the basic facts of cost and productivity. We have reduced man-hours per ton but we have not been able to control increasing costs. The challenge is that we have to increase productivity without the assistance of huge capital expenditure. It's that simple.

"We should become better acquainted with all items of cost, not just those that concern us directly, so that no opportunity for improvement by advanced technology will be overlooked.

"Each one of us should work towards a better understanding of the research programs of our own companies and those cooperative programs being conducted on our behalf at the Pulp and Paper Research Institute of Canada.

"As the results of their research investigations become available, study them in the light of your own company's operations, and be prepared to assist in field trials of new methods and ideas so that the benefits of research can be quickly put into operation. The Institute's recent success in developing an instrument for the continuous measurement of lignin content and pH during the cooking process is an outstanding example of improved technology.

"Also, spend some time studying the research and improved technology in other industries. The use of the power saw in the woods was not developed by our industry but adapted from another. It was the improved technology of a dependable small gasoline motor that made it practical.

"New and improved techniques in materials handling lead to cost cutting and savings. Instrumentation and electronics will certainly play large parts in increased productivity, therefore keep abreast of the latest developments in these fields.

"Study waste reduction, both from the point of view of stream improvement and recovery of valuable fiber and filler. Any technology that will increase productivity and quality, reduce costs and waste, improve our present products and create new ones should be carefully studied and applied."

Luke Calls for World Leaders At Canadian Meeting

David L. Luke, retiring president of the American Paper and Pulp Assn., called on Canadians to "lend your talents to world leadership of this industry."

He expressed hope for development of new products (his own West Virginia Pulp and Paper Co. and Cluett, Peabody jointly announced a new stretchable paper) and he described pulp and paper as "amazingly versatile in application."

"Once capital is invested in pulp and paper it is fixed," warned Mr. Luke. "One capital investment can't yield to another. We should proceed on an even basis so we don't grow too fast." *(Turn to page 58)*

Jones . . . . . Wing . . . . . Duncan

DR. R. D. DUNCAN, asst. mill mgr., Canadian International Paper Co., Three Rivers, Que., is new chairman of the Technical Section of the CPPA. He succeeded JOHN W. WING, gen. mgr., Dryden Paper Co. DOUGLAS JONES is permanent secretary-engineer of the Technical Section. J. McK. LIMERICK, research director, Bathurst Power & Paper Co., was elected vice chairman. New 3-year councillors are D. W. MOSHER, Consolidated Paper Corp.; R. H. R. YOUNG, Crown Zellerbach Canada, and D. P. BEST, The KVP Co. GERRY PENNEY and RALPH PATTERSON retired as councillors.

Two Revolutionary Pulping Processes

New Groundwood Process at Manistique

Papers Point to Machine Changes

Mixed Pulps Control System in Nova Scotia

True to its history of past winters, the Canadian annual technical sessions in Montreal came up with another "sensation" and this probably one of the most exciting in recent years.

It is the new Magnefite pulping process developed at Howard Smith Paper Mills. One technical leader after another, both Canadian and Amrican, told PULP & PAPER it will prove "revolutionary" and one of the outstanding pulping developments in history. "The greatest thing to happen for sulfite pulping in 25 years," said one veteran observer.

The Howard Smith mill in Cornwall, Ont., instituted a three-months trial of the process in its sulfite mill in January and previously has had up to 1,000-ton runs. But it was a well-kept secret until George H. Tomlinson II, technical director at Cornwall, and "true son" of his distinguished scientist-father, as one observer remarked, unveiled the process in a paper at Montreal.

The process is a successful companion piece to the magnesia base recovery system which was developed originally by Howard Smith mills and put into first commercial use by Weyerhaeuser Timber Co. and Babcock & Wilcox Co. At present, without a recovery process at Cornwall, the management is asking the woods dept. to produce cheaper wood—hardwoods—for the process to make up for present higher pulping costs. For the long run, Howard Smith management is committed to the new process.

Arbiso Process Discussed . . .

Another important new pulping process, the Arbiso process developed by Abitibi and based on Pulp & Paper Institute work as well as Abitibi research, was discussed at Montreal. This is now going into commercial use at Lakehead, Ont., mill of Abitibi. Both the Magnefite and Arbiso processes are acid cooks but without free SO_2, thus facilitating bringing cooks up to pressure rapidly without the danger of burning fiber as with free SO_2. A difference is that the Magnefite process uses magnesia base and the one going at Lakehad uses sodium base.

Magnefite Process Results . . .

Data presented in the paper prepared by the Tomlinsons, pere et fils, and J. R. Bryce and N. G. M. Tuck, senior Howard Smith chemists, show that pulps superior to regular sulfite were produced and that by increasing the combined sulfur dioxide concentration, faster pulping, lower rejects and greater unbleached pulp brightness are obtained. By varying the cooking times, superior pulps were produced over a wide range of yields.

It was noted that with the startup of the Brown Co. MgO recovery system at Berlin, N.H., a few weeks ago, more than 500,000 tons a year of MgO base pulp is made. Unlike the four West Coast mills using or to use MgO (the new Sitka, Alaska, mill included), Cornwall's wood species did not facilitate such a program. But instead of going to kraft, Cornwall has developed this new process which "still retains the remarkable simplicity and innate advantages of MgO recovery." With the magnefite process, spruce pulp yield of 52% and 62 G.E. brightness was recorded; with jack pine 49.9% and 61.4, with mixed hardwoods, 53.1 and 52.5, and with poplar 58.8 and 65.1. For comparison, conventional unbleached sulfite—47.8 and 63.

The sulfite mill runs show the softwood pulps, although superior to conventional grades, are slightly lower in strength. The hardwoods, however, are at least equal in strength. The process allows establishment of a self-sustaining operation with exceptionally low heat and chemical losses, eliminates stream and air pollution, allows low liquor-to-wood ratios, use of many species, and production of both chemical and semichemical pulps with a single recovery system.

Results of Arbiso Process . . .

The paper on the high yield Arbiso sodium bisulfite process using spruce was the work of R. M. Dorland, R. A. Least and J. W. McKinney of Abitibi Research and Development. Proper refining gives bright pulp of exceptional strength, with less lignin than acid sulfite of same yields. Time and temperature relations are flexible. Mill trials confirm the good quality and strength.

The authors concluded there are advantages cooking with sulfite liquor at about pH 4.5 where all SO_2 is combined as bisulfite. Penetration is slower at higher pH. Strength is unaffected even at 180° C. Lignin removal is faster than in acid sulfiting, especially at high yields. Strength shows only minor changes as yield rises, but drops rapidly after 80%. At moderate freeness level, Arbiso pulp shows unusually good tear.

George Maxwell Hobart . . . New Chairman of CPPA

According to Canadian custom, election of Mr. Hobart as chairman for 1958 of Canadian Pulp and Paper Assn. executive board was surprise announcement of last day of meetings. He is president of Consolidated Paper Corp., Montreal. Was born in Kingston, Ont., graduated from McGill in chem. engineering and studied at Royal Institute of Technology in Glasgow, Scotland. He was a Canadian artillery officer in France for 4 years of World War I. Joining Somerville, Ltd., London, Ont. paper converters, he rose to presidency of that company. He joined Consolidated as vice president in 1945.

Manistique, Mich., Process . . .

A new groundwood process with Bauer double disk refiner now going into the Manistique Pulp & Paper Co., Manistique, Mich., was subject of a paper by W. H. de Montmorency of the Pulp and Paper Research Institute of Canada. In this process, wood is ground coarse with low power of 30 to 35 hp for grinders, then refined with the Bauers, getting more production at lower cost. Cumulate energy costs were lower than those for grinding when refining was done at 2.5 to 5.% consistency range, and strength development was more efficient at these consistencies.

When double pass rather than single pass refining was employed it was possible to operate at wider plate settings. Pulps were freer than those made in single pass. Type C906 plates were found suitable, and type 3718A was not.

Papermaking Papers Pioneer . . .

In paper given on paper machines in several sessions, important new

facts were brought out, and some delegates felt they pointed the way to radical changes in the wet end operations of machines. One veteran delegate expressed the opinion the industry may look for more changes on the paper machine in the next ten years than have taken place in the past 100 years. At any rate, Canada as a great newsprint country, and with more time now for research, produced a proud list of papers in this field.

No More Table Rolls? . . .

A paper by Sir Geoffrey Tayor of Cambridge University on drainage at the table roll and foil, read by C. I. H. Nicholl of Laval U., was said by one listener to point the way to possible future elimination of table rolls. It pointed out considerations that might permit speeds up to 2800 fpm, when present table rolls could not be used. Peter Wrist of Mead brought out some opposing views and it was indicated that a lot of work is still to be done.

New Method to Check Fibers . . .

A Canadian Institute paper on hydrodynamic behavior of papermaking fibers was a pioneering work, showing new methods of checking flexibility of fibers and useful to all the papermaking industry. The method is based upon classification of rotational orbits of the fibers in laminar shear and provides a measure of distribution of fiber flexibility in a given sample. Flexibility increases with increased fiber length, decreased residual lignin and beating.

Headbox Potentials . . .

Don R. Simonds of Beloit Iron Works reported that today's headboxes can give more precise control at 2,000 fpm than they did at 1,000 fpm about 15 years ago. Newsprint control can be effected at ½ lb. plus or minus. But he did point out too much should not be expected of the headbox and other parts should be in synchronization.

S. J. Leishman, of Provincial Paper Ltd., a veteran of papermaking mill management, told how the great quality variances in wood present a serious problem for the papermaking efforts to attain uniformity.

Eliminating Waves on Fourdriniers

Nicolas M. Reitzel of Rice Barton gave a paper showing waves appearing on a Fourdrinier and producing basis weight fluctuations are of constant frequency and in synchronism with the screens, although varying in amplitude. The pulsation is harmful only when a number of screens move in unison. To eliminate pulsations, operate screens in out-of-phase relationship.

More on Wet Ends Operation . . .

The hydrodynamics of paper machine headbox approach piping was presented by Jasper Mardon, P. B. Wahlstrom and G. O'Blenes of the Anglo mills. W. D. Baines of the Canadian National Research Council, discussed the effect of a simple surge tank, as opposed to semantic air dome inlet, on pressure oscillations in a pipeline. Wet end flow problems were investigated in a report by A. R. Murphy and G. H. Webster of Canadian I.P.

Control of Kraft Chemicals . . .

Through a lab technique at the Research Institute of Canada, Claud Christianson (now with a chemical firm in Cleveland, O.) and C. W. Legg were able to control concentration of chemicals in kraft pulping. They used an injection cooking process.

Printing Papers . . .

The demand for paper capable of higher speed printing and faster drying inks was told by R. P. Tyler of Harris-Seybold, Cleveland, O. Printing press changes will require greater paper strength and better finishes. A Toronto printer, A. Beecroft, added that coating and sizing qualities and uniformity improvement is needed in such papers.

New Control System . . .

A new mixed pulp control system at the Mersey Paper Co. mill in Liverpool, N.S., was reported. Mersey has gone to considerable length to control groundwood and sulfite in process with consistency regulation. Difficulty remained in stock regulation to machines, inadequate broke systems and overstressed machine drives, and intangible stock changes not sensed by the regulators.

A new system includes DeZurik pipeline type consistency meters used as stuff meters. Instead of a consistency signal going to a controller to operate a dilution valve, it is used to increase or decrease the volume of stock passing, to hold the fiber weight constant. Fischer and Porter Flowrators are used with Schutte & Koerting cam-type pneumatic transmitters instead of electric transmitters. With speed transmission range reduction, increased sensitivity was achieved.

Materials Handling . . .

J. W. Hall of Westinghouse urged a plant layout department to develop a really good materials handling system. The layout engineer should enlist the brains of everyone who can contribute to efficiency. He must sit in on planning meetings and keep abreast of plans to change processes, etc.

Time-Life magazines' big paper warehouse in Chicago was described by Manager Wayne E. Crotty. The plant went to vertical handling in 1950. Handling costs and damage have been drastically reduced. Gas powered lift trucks with roll clamp and Bartel device are used. These two devices and forks are interchangeable on trucks. Main aisles 16 ft. wide permit highway trucks to enter the building. Traffic is one-way. Cross aisles 14 ft. wide permit sufficient turning radius for high lift trucks.

All rail shipments of roll stock are unloaded on end. For unloading 5,000 capacity trucks and 130 in. Hi-Lo masts are used. Rolls are tiered to 240 to 300 in. high, by a 265 in. lift truck with roll clamp.

Vacuum Pumps . . .

Fred W. Green and Russel N. King of Nash Engineering told of a quantitative system for sizing, rating and application of vacuum pumps for various paper machine sections.

Suction Rolls . . .

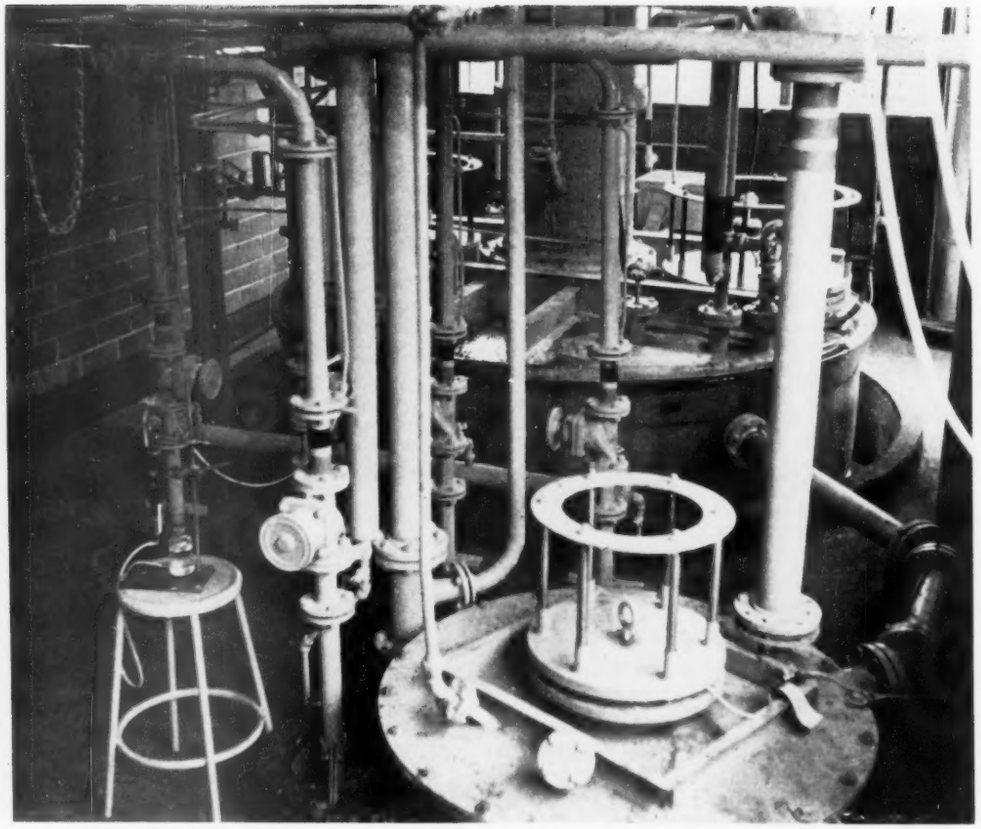
Richard L. Elderkin, of Consolidated, son of K. O. Elderkin, who heads Bowaters Research and Engineering Corp. and who built the Bowaters Tennessee mill, gave a paper on fundamental mechanics and equations for determining stresses contributing to breakdown of suction rolls.

Pulp and Paper Magazine of Canada gave a first prize for gadgets to Louis H. Tremblay of Consolidated, Port Alfred mill, for designing a devise to permit rapid change of paper from one drum reel to another as it spins from the paper machine at 20 mph.

Fowler . . . . . Avery

CPPA President R. M. FOWLER said we can all bid goodbye to the old days of capacity production, except for brief intervals.

United States-born BENJAMIN F. AVERY, president of KVP Co. of Canada since 1951, completed his term as Chairman of CPPA. Mr. Avery is a native of Aurora, N.Y., and Yale forestry graduate.



TWO GENERATORS—NOT ONE—combine for greater efficiency, increased yield. Also new is packed scrubber on top of primary generator. Note explosion covers.

For Brightness Plus in Soda Pulps

. . . A New ClO_2 Generator Plant at Cornwall, Ont.

● With today's emphasis on brighter and brighter pulps it was inevitable that one day soda pulp would be caught in the chlorine dioxide trend. That day has come.

Now, using the Mathieson process with some added improvements by the Electric Reduction Co. and some refinements of its own, Howard Smith Paper Mills Ltd. is bleaching soda pulp with chlorine dioxide at its Cornwall, Ont., mill.

What's more, "Seagull Soda's" better qualities such as softness, bulk and cleanliness are improved and opacity has been maintained. All this is in the neighborhood of 88 GE brightness.

Look Around, Then Build . . .

That's what Howard Smith did. So, in a sense this plant represents what Howard Smith considers an "ultimate" in chlorine dioxide generating plants for a good many years to come.

An important feature of the Mathieson process is that if something goes wrong in the flow meters you can keep going with chemical tests to maintain control, explains Les Tomlinson, assistant mill manager.

Dry sodium chlorate (trucked in) is hosed into a slurry tank with hot water to make a 46% solution. Liquid sulfur dioxide (SO_2) in tank cars is unloaded into an 80-ton capacity storage tank. Sulfuric acid (also by truck) is air unloaded to a roof tank, flows by gravity to the main generator.

The Process in Brief . . .

The lead-lined main generator is of straight Mathieson design, has four sparger plates (for distribution of air, SO_2) with draft tubes for improved circulation. The generator is charged with 93% sulfuric acid and sodium chlorate. The liquid SO_2 is evaporated, diluted to 8% with air supplied by a Nash compressor, and enters via the sparger plates. ClO_2 is diluted by the air in the SO_2, the latter being kept at a concentration where it is not dangerous. Main generator capacity is 4.5 tons per day.

One improvement is the use of a gas scrubber on top of the main generator to remove acidic components such as sulfuric and hydrochloric acids from the generator gas. The chlorate feed moves down the scrubber, countercurrent to the generator gases. Acids are thus removed and returned to the generator. Results: improved chlorine dioxide purity; an increase in ClO_2 yield and a small saving in sulfuric acid requirement.

Salient Features:

Safety: No wood is used because chlorate with wood is combustible. Floors are painted dark so that any spill (chlorate being white) quickly shows up and are also sloped so that any spill can be easily hosed down.

No unnecessary pumping. Everything is by gravity. Only pumping is of chlorate to the head tank and chlorine dioxide to bleach plant.

Method of cooling generators. A skin of water flows over a weir and down the generator walls.

Liquid sulfur dioxide handling. Compressed air padding forces liquid SO_2 through evaporator and control valve into dilution air from Nash compressor. SO_2–air ratio is controlled by Fischer-Porter Flowrators.

Safety on instruments. Automatic shut-down in case of high temperature or pressure of the gas in the generator. An air purge goes on to sweep out the system in case of a puff in the generator.

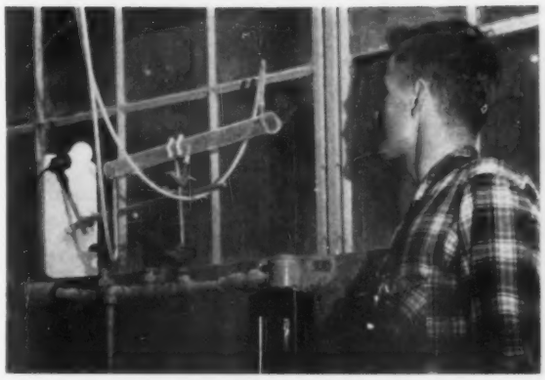
Absorption towers are properly sized for top efficiency. Only one is used when operating at low rates.

Entire building is air ventilated and is under slight pressure in the operating end. All equipment is under a vacuum. ClO_2 tanks are vented back to the absorption towers. A steam injector is used so that rarely is there any odor of ClO_2.

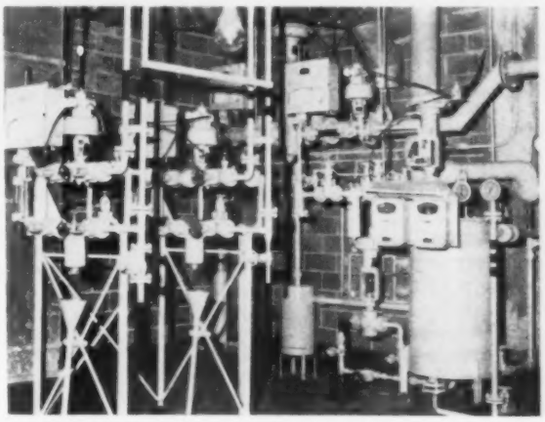
The generating plant is 56 ft. by 68 ft. (plus a 39 ft. high penthouse.)

Table of Operating Conditions

	Molarity $NaClO_3$	Normality Acid	Molarity Chloride
Primary Generator	0.20	9.0	0.09
Secondary	0.02	9.4	0.14
Stripper Effluent	0.3 gr/liter equivalent ClO_2		
Chlorine dioxide solution:	6.0 gr/l ClO_2 0.2 gr/l Cl_2		
Absorption tower exit gas	approximately 1 mg/liter		

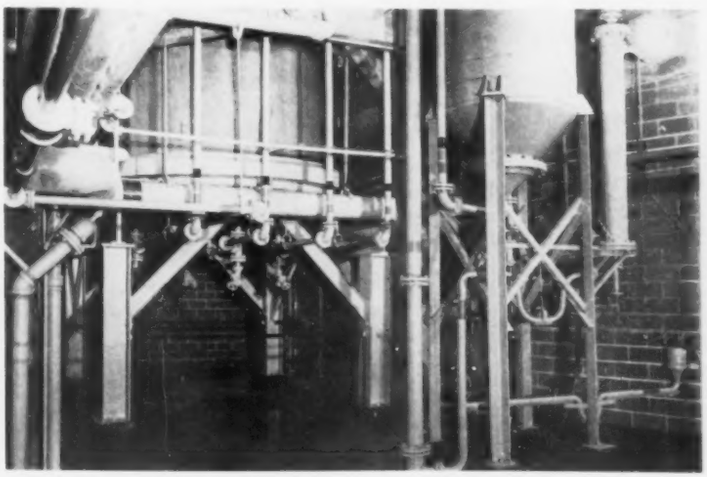


INEXPENSIVE HOMEMADE ClO_2 TESTER. Tail gas is sampled continuously, viewed through glass tube with illuminated white bore. If gas is yellow, ClO_2 is present.



AUTOMATIC CONTROL VALVES for process control regulate flow of chemicals from storage to generator. Fischer & Porter recorders, Alloyco stainless valves are used.

PLANT IS STARTED by setting flowmeters to production rate desired. Important feature is control by analysis.



CHEMICAL AND AIR CONNECTIONS on primary and secondary generators and stripping tower. Picture shows exactly how Howard Smith engineers paid careful attention to piping arrangement in designing plant.

ClO_2 goes to two parallel absorption towers where it is absorbed in chilled water. Two storage tanks hold a total capacity of one tone of ClO_2 in a solution of 6 grams/liter strength.

Secondary Generator for Efficiency . . .

Overflow from the main generator goes to a secondary generator (this is unusual) where it is further treated with SO_2 and air to bring the chlorate concentration down from .2 moles to .02 m., thus increasing the ClO_2 yield. Secondary generator overflow goes to a stripper where the residual ClO_2 is stripped with air.

The entire generating plant has been set up to operate by instruments. Control is by analysis so that operations can be sustained in case of an instrument failure.

Chlorine dioxide solution is then pumped from the storage tanks to the ultra-modern soda pulp bleach plant designed for 350 tons per day.

Equipment in Howard Smith ClO_2 Plant

Main generator—10 ft. by 8 ft. 3,250 gal. cap.

Nash Hytor compressor—250 cfm at 10 psi @ 1745 rpm.

Absorption towers—25 ft. high by 18 in. dia. U.S. Stoneware.

ClO_2 storage tanks—14 ft. by 19 ft. high Stebbins Semco brick lined with polyester cement over a membrane of Sarancote.

Secondary generator—3.9 ft. by 6 ft. high.

Tanks: sodium chlorate—2-14′ dia. x 19′ high, 1-7′ dia. x 10′ high; SO_2 8 ft. by 40 ft. long; Sulfuric acid—9 ft. by 20 ft.

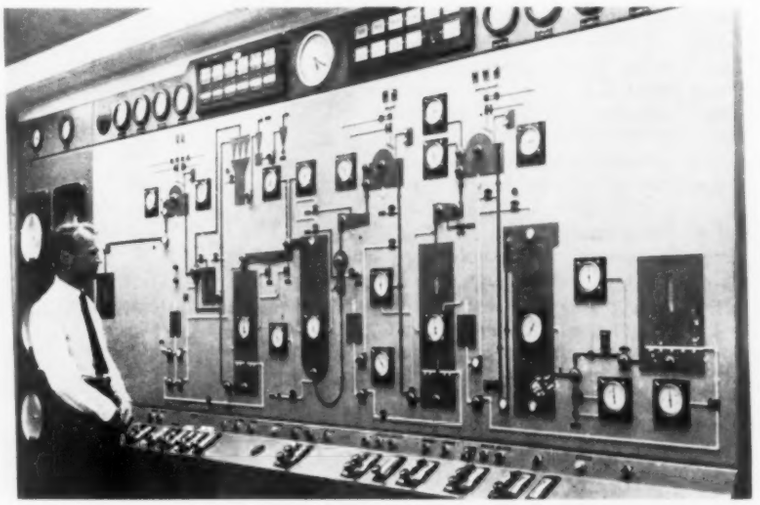
Valves: ClO_2—Fortune diaphragm seal plug valves with glass lined body, Teflon plug and seal diaphragm. Sulfuric Acid—Alloyco 20 stainless steel gate valves, Teflon packed. Chlorate solution—Lunkenheimer iron gate valves. SO_2 relief vent generator drain—ACF round front 150 lb. plug valve.

Piping: ClO_2 solution and gas—Saran lined steel pipe. ClO_2 generator Solution—Lead lined steel pipe; Chlorate—stainless steel.

Gasketing—Tygon, saran rubber.

Packing—Teflon braid.

ClO_2 Pumps—Durco. Durimet 20 Alloy.



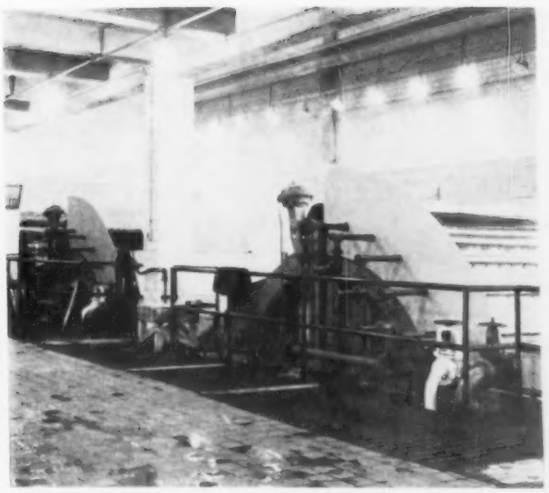
"INSTANT SEE" IS FEATURE of this Howard Smith-designed graphic control board. Instruments are arranged so that when everything is all right, dials are in 12 o'clock position. Les Tomlinson, Asst. Mill Mgr., checks conditions on board. Process flow is from right to left.

Features of New Soda Pulp Bleach Plant

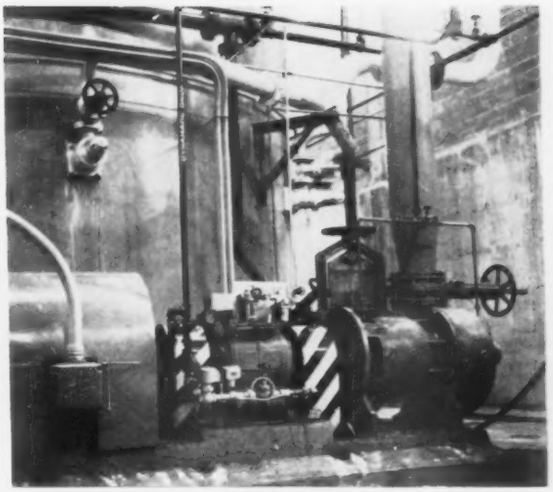
The bleaching sequence for Howard Smith's soda pulp bleach plant was determined by its research dept. after extensive laboratory experiments. Brightness, cleanliness, bulk, opacity and good papermaking characteristics were evaluated in determining the sequence which is: 1, chlorination, 2, caustic extraction, 3, chlorine dioxide, 4, hypochlorite.

AT INTERLOCKED CONSOLES, John Ferguson, alkaline pulping supt., demonstrates how operator can see and control operations of washers (note mirrors on posts alongside washers).

OPERATOR'S GLASS ENCLOSED CONTROL ROOM is on mezzanine floor, alongside washers. Room is also sound-proofed. Washers are completely controlled from within this room.



THREE BLEACH PLANT WASHERS are 11½ by 16 ft., type 316 stainless steel by Sherbrooke (Impco). Note grating for spills, and mirrors on mezzanine-level operating floor.



FOR SMOOTH ACCELERATION, closer speed control, Dynamatic eddy-current couplings are used; and for trouble-free maintenance of pumps, Alemite oil mist lubrication.

From a smooth start up the 250-ton a day operation (with eventual capacity of 350 tons) at the Cornwall, Ont. mill, Howard Smith reports bleaching soda pulps to a brightness level of 88 GE. Behind this are some interesting innovations in process flows and equipment.

The bleach plant, 102 ft. by 54 ft. by 112 ft. high, rests upon a 3 ft. slab of triple reinforced concrete. Instead of imbedding a seal tank overflow header in this, Howard Smith engineers decided to set the 16 in. line in the air, about 25 ft. above ground level.

Here are other features:

Process Flow:

Chlorine (3% consistency) followed by washing.

Caustic Extraction, (11% consistency) at pH around 11.

Washing, then ClO_2 stage using a Kamyr continuous upflow high density (11%) system.

Hypo, immediately after, with no intermediate washing step.

Bauer Centri-Cleaners—three stages of 30 units insure maximum cleanliness.

At present, second stage is straight caustic extraction but could be used as a high pH hypo if desired.

By adding a hypo stage immediately following ClO_2 (with no washing stage between), Howard Smith reports getting a big increase in color with little hypo (.10%). Effect is to extend bleaching effects of preceding ClO_2 stage.

Polyester Reinforced Fiberglas . . .

Plant Engineer Hugh Young said he has used Fiberglas wherever he can. Some applications: As a louvered hood over washers, mounted on aluminum piping across washer faces. Also in place of glass windows and for ventilating system ductwork.

Use of Dynamatic eddy-current couplings. "Gives you a very smooth acceleration and close control of speeds. Electronic controls keep you on the beam and they are not too expensive."

Alemite oil-mist lubrication system. "We like it for the way it prevents mechanical breakdowns. Saves bearings, no failures. One less thing to worry about."

(Alemite oil-mist is a completely enclosed system which atomizes oil into minute particles, distributes it through tubing to bearings where it forms a uniform lubricating film.)

Controls are Well-Placed . . .

An important innovation is putting the operating floor on a mezzanine 4 ft. above the washer floor, so that operators can easily see the washer operation. Gratings at floor edges avoid spills on operating floor.

All controls are bunched in one glass enclosed room on this mezzanine within easy view of the washers. Here are positioned washer console controls (with each stage being interlocked) and a Howard Smith designed graphic panel, assembled by Foxboro. Reagent and stock flows, and temperatures are controlled from the graphic panel. Signal lights on the graphic panel represent motors, and light up should the motor stop.

All motors governing the flow of stock through any one stage are interlocked. Any electrical failure in the interlock will instantly shut down the complete stage thus avoiding stock plug-ups and overflows.

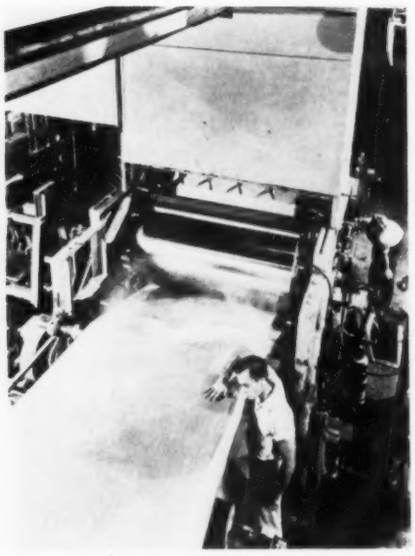
HUGH YOUNG is plant engineer for Howard Smith at Cornwall.

Electrical Engineers Plan Raleigh, N.C., Meeting in March

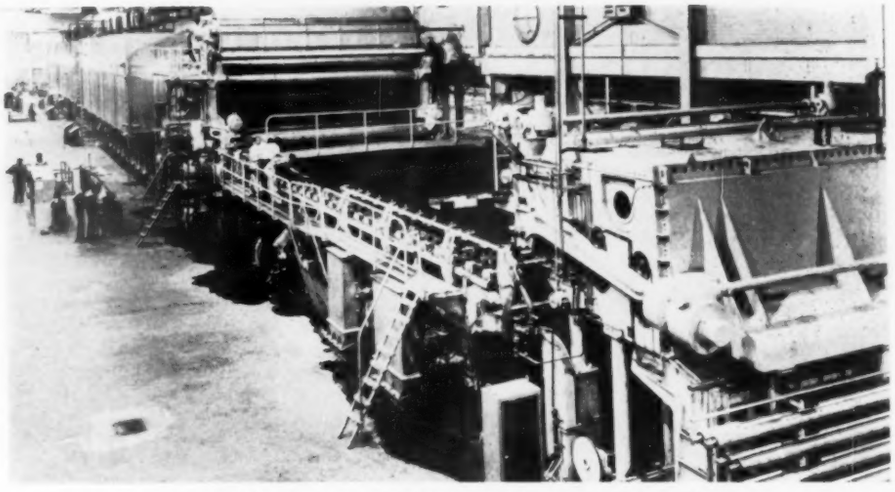
Aspects of automation in this industry will be part of the program heard by some 200 ranking electrical engineers and others when they assemble March 27-28 at North Carolina State College, Raleigh, N.C. The first meeting of this group was held last March at Georgia Tech in Atlanta (for highlights see PULP & PAPER, May 1957, page 44).

The annual Conference on Electrical Engineering as applied to the pulp and paper industry is sponsored by the pulp and paper industry subcommittee of American Institute of Electrical Engineers.

Stretchable Paper was Born Here . . .



Developed on this 60-in. pilot unit . . .



And matured to commercial reality on this 240-in. Beloit kraft paper machine.

A New Product: Stretchable Paper

Commercial development of Clupak announced by West Virginia Pulp & Paper and Cluett, Peabody — will license other manufacturers

• A new paper product has made its debut: stretchable paper. Invented by Sanford L. Cluett, inventor of the Sanforized process, and brought to commercial realization by West Virginia Pulp and Paper Co., the new product is said to bring a new dimension to paper—elasticity (up to 13%), flexibility, superior toughness, smoothness and pliability; permits savings of 20% in paper.

In laboratory tests of 50-lb. weights of regular kraft paper and Kraftsman Clupak, the extensible paper proved five times tougher, says Westvaco. Grocery bags filled with typical supermarket purchases were suspended from a rope snubbed at the end of a 2 ft. fall. The regular kraft bag ruptured and the contents scattered all over. The bag of Kraftsman Clupak paper visibly gives or stretches as it is jolted to a stop at the end of the rope. But where the regular kraft bag fails on the first or second drop, Clupak bags perform satisfactorily 20 times or more before failure.

How Idea Was Born . . .

When Mr. Cluett was granted the patent for his compressive shrinkage process in 1932 he had other ideas about a new kind of paper. Since his youth he had studied live and inert matter under a microscope and became absorbed in photomicrographs trying to figure out what invisible forces held materials together.

How do these forces give strength to cotton or woodpulp fibers? He suspected molecular action. Soon he began making a new kind of paper on laboratory machines which pushed and twisted the wet fibers together in a different manner from the felted fibers found in conventional paper. His lab machines used heated steel rolls and rubber belts as in his earlier experiments for textiles but this time the product had stretch and not shrink. By making adjustments on this machine he could put as much or as little stretch in the paper as he wanted.

How It's Made . . .

The process is 100% mechanical. Stock preparation is normal. The extensible processing unit is located in the dryers. Compressive shrinkage occurs in a comparatively short area. Installation consists basically of a heated, polished pressure roll (weighing about 2 tons) and a 1 in. thick rubber blanket. As the sheet or web enters the nip it is compressed with the blanket and expanded.

First commercial unit is now on West Virginia Pulp and Paper Co's. new $25 million Beloit kraft Fourdrinier at its Charleston, S.C., mill. This is a 225-ton-a-day, 240-in. machine designed for speeds over 2600 fpm. To date extensible paper has been made at speeds exceeding 1,500 fpm.

Suggested Uses . . .

Potential uses for Clupak are still staggering the agile imaginations of West Virginia men. Some suggestions:

Stronger, tougher, lighter paper bags and sacks for everything from 100-lb. cement multi-wall sacks to supermarket checkout bags, special bags to hold flour, mattresses, new tin cans, wrappings, impregnated with rust inhibitor, to protect machined engine parts, stretchable, durable, tough wrappers for catalogues, containers of exceptional strength and moisture resistance when laminated, coated or impregnated with asphalt, polyethylene, wax and other materials, and cable and auto tire wrapping.

The company is being bombarded with scores of other ideas for possible uses with other grade than kraft. For example:

Cheap, serviceable, disposable articles of wearing apparel, disposable undersheeting for hospital beds, fender pads for the auto industry, paper-metallic laminates for building, masking tape, pressure sensitive tapes and gummed tapes, shotgun shells, and even disposable saddle blankets (a request from England).

An example of the possible economies: the ABC Bag Co. supplies XYZ Cement Co. with 6,000,000 multi-wall sacks each year. By converting to Kraftsman Clupak, ABC reduces total weight of paper used in its sacks up to 20%, a reduction of 840,000 lbs., about 10 boxcars less paper.

How It Started . . .

When Mr. Cluett stepped into the offices of West Virginia Pulp and Paper Co., in 1953, he must have wondered if he had another product which would do as much for paper as another invention of his had done for textiles.

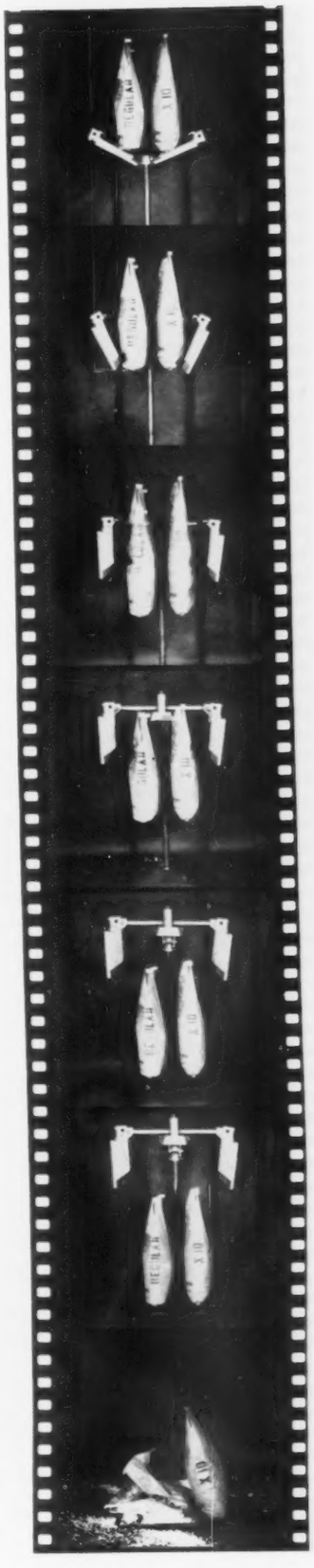
Today, the paper industry is pondering this same question. There were some hitches. For instance, time—no one knew how long it would take to develop the bench model into a commercial unit (answer: three years). Also, how much money do you need to bring an idea to the point where it is self-sustaining (in this case: $2.5 million and they're still going strong).

Licensing Rights . . .

While extensible paper was moving from the 2-in. laboratory bench model to a 15-in. unit, then to a 60-in. pilot model, it was realized that capacity of a single unit or in one company, would not be enough to supply the potential demand. As a result West Virginia organized with Cluett, Peabody, a new corporation—Clupak, Inc. to license the process, product and trade mark.

President of Clupak is Gerald E. Amerman who says that the license will be available to paper manufacturers in the United States and Canada and throughout the world. Requests for licenses have come from all parts of the world, says Mr. David L. Luke, president of Westvaco. The license will carry the "favored nation clause," says Mr. Amerman.

Kraft paper manufacturers have received many inquiries from converters. PULP & PAPER has asked some of them what they think about Clupak. They said, samples show good stretchability and time will tell if the demand for stretchable paper justifies the expense.



BUTT DROP TESTS of 50-lb. multi-wall sacks as seen by high speed strobe camera. Regular kraft paper (left) ruptures upon impact on concrete floor at end of 5-ft. drop. Clupak bag is intact, takes up to 5 times as many drops.

SPECIAL REPORT ON KALAMAZOO CONFERENCES

New Facts about New Pulp Processes

Cold soda pulping of oak . . . how continuous digesters are doing . . . Zimmerman vs. Mead semi-chemical recovery processes

● Will continuous cooking replace batch cooking in pulp manufacture? No one can say for sure but expansion of continuous cooking is inevitable, according to participants in the Second Annual Pulp and Paper Conference held at Western Michigan University, Kalamazoo, on Jan. 23.

Theme of the conference, "Some Modern Methods of Pulp Manufacture," was highlighted by an exhibit of models of several modern pulping processes. Following a tour of the Paper Industries Laboratories, the morning session got underway with a technical description of new high yield pulping processes by Raymond L. Janes, asst. professor of paper technology at WMU.

Mr. Janes discussed neutral sulfite semichemical, sulfate semichemical, acid sulfite semichemical, chemigroundwood, chemimechanical or cold caustic soda, and groundwood pulping processes, presented in the order of increasing unbleached pulp yields.

Dr. Donald T. Jackson, technical director, Hammermill Paper Co., led off a panel discussion with G. H. Chidester, chief, div. of pulp and paper, Forest Products Laboratory, R. A. Shook of Sprout, Waldron & Co., Inc., and Knut Dahl, president, Kamyr Inc. Dr. Jackson, referring only to fully bleached pulp, cited these three areas in semichemical pulping which need attention:

1. More Specific Vocabulary . . . "The terms used for various methods of semichemical pulping need definition so we will know what we're talking about when discussing them. They are confusing and misleading." Mr. Chidester agreed, remarking that the term "semichemical" itself includes a range from a 90% yield with a mild cook of sodium sulfite liquor to the other extreme of a 35% yield with a fully bleached semichemical, an entirely different product.

2. Handling Waste from Bleaching . . . With a fully bleached semichemical pulp there is about as much organic waste from bleaching as from the pulping process. It is extremely resistant to treatment and so far no satisfactory method has been found, said Dr. Jackson. Biological treatment "leaves much to be desired, particularly in color removal."

3. A Study of Fiber-to-Fiber Bond . . . "There has been little effort spent on developing beating stock preparation equipment designed to bring out the pulp's unique properties." Hammermill has done laboratory work with unconventional approaches and is enthusiastic about the potential of these fibers.

Grandbois ..... Kirkpatrick

Morlan Brandois, market research mgr. for St. Regis Paper Co., talked on the "marketing management concept" at Kalamazoo meeting. William A. Kirkpatrick, vice pres. and research director, Allied Paper Corp., was toastmaster.

Cold Soda Process Used on Oak . . .

Mr. Chidester reviewed the development of the cold caustic soda process by the U.S. Forest Products Laboratory and Bauer Bros. Co., begun in an effort to make a satisfactory mechanical pulp from dense hardwoods. Oaks, among the most difficult woods, are now being used more than other species for cold soda pulps. They require more retention time. The laboratory recently worked with a rolling mill to make cold caustic continuously. It produces coarse pulp in a matter of seconds but the pulp needs further refining in a disc mill.

Describes Versatile Digester . . .

Versatility of the new continuous Sprout Waldron Rotary Digester was stressed by Mr. Shook. He pointed out that it can cook two different sizes of chips at the same time, or can use two different chemicals and two different woods at the same time. It does a good job beating paper broke, he said. Sonoco Products Co. has had them in operation since last October, turning out 450 tons daily. Robert Gair div., Continental Can Co., is installing them at its Hodge, La., mill to produce kraft.

Wise ..... Stocker

J. A. Wise, president and gen. mgr., Kalamazoo Paper Co., chats with Dwight L. Stocker, president, The KVP Co., who was re-elected advisory committee chairman for paper technology dept., Western Michigan University.

Kamyr's Goals . . .

The Kamyr organization, Mr. Dahl remarked, advocates continuous systems, insisting they will make more uniform and stronger pulp than batch.

Kamyr believes in: a submerged cook, and therefore a short pre-steaming to get air and gases out; adequate retention time; vertical digesters; and, finally, good circulation, "probably the most important feature in continuous cooking with a close relation to strength and uniformity."

Zimmerman vs. Mead Process . . .

Dr. Jackson was asked "why Hammermill had discontinued use of the Zimmerman process." He stated emphatically that they had not discontinued this process which was installed in 1954, the first and only operating commercial unit (see PULP & PAPER, Feb., page 69). This pilot plant operated successfully for two years and then the Watervliet Co., which

was testing the Mead recovery system of Babcock & Wilcox, joined the organization.

Hammermill decided not to commit itself to any system till both were completely evaluated, and "at present it is pretty much a toss-up." Technically they are entirely satisfied with the Zimmerman unit but economically they are not. So far the Watervliet system looks good but there have been difficulties which have prevented an evaluation of it economically, he said.

"Overdue" for Pulping Improvements . . .

Lee Eberhardt of Bauer Bros. pointed out that pulping progress has consisted of adding to existing 100-year-old techniques. To attain 90 brightness in kraft, more bleach stages are added at a cost of $500,000 each and a final yield of less than 40%.

"The chain saw was a breakthrough in the woods, and we are overdue for more breakthroughs in pulping," he said. "Whole new industries—glass, plastics, aluminum—compete with the paper industry." A partial answer is higher capacity equipment; for example, the Bauer Double Disc Refiner has increased from 300 hp to 800 hp in ten years. He predicted a fully automated continuous pulping process is near.

Pulpwood should be converted into chips as early in the operation as possible, he said. Coal is pumped through pipes—would it be possible to pump chips the same way in a stream of fluid or air? Outdoor storage and chip handing systems of West Coast mills could be applied in the east and north.

High Yield Gives Low Waste . . .

W. J. Darmstadt of Babcock & Wilcox Co., pointed out that Dr. P. E. Shick, now director of research for Owens-Illinois Glass Co., developed the Mead recovery system now being introduced at Watervliet Paper Co. and Mead's mill in Lynchburg, Va. At Watervliet, 80% of chemical requirements are supplied by the recovery process.

Marginal economics are impending the progress of neutral sulfite recovery systems. As yield goes up, waste products go down. In the kraft process there are 3,000 lbs. of solids per ton of pulp, or 19,500,000 btu in waste liquor. In neutral sulfite processes the

Nendorf ..... Dickson

Henry Nendorf, coating supt., Rex Paper Co., who becomes a 35-year man at Rex in April, chats with Jack Dickson, Midwest representative for Stowe-Woodward, who completed his term as national chairman of the affiliates' division of the Supts. Assn.

What Does It Cost to Make Pulp?

Average Costs for Making Pulp

(Cost per ton O.D. pulp)

Raw Material	*Process*	*Raw Material Costs*	*Chemical Costs*	*Overhead & Operating Costs*	*Total Cost*
Spruce	Unbleached Sulfate	61.50	4.08	33.98	99.56
"	Bleached "	71.10	13.39	45.00	129.49
Pine	Unbleached "	41.00	4.08	33.98	79.06
"	Bleached "	47.50	13.39	45.00	105.89
Aspen	Unbleached "	24.20	3.63	33.28	61.11
"	Bleached "	26.50	11.22	43.31	81.03
Spruce	Unbleached Sulfite	67.80	4.22	37.64	109.66
"	Bleached "	73.00	10.54	45.66	129.30
Aspen	NSSC—Corrugating	22.10	5.18	23.76	53.04
"	" Semi-bleached	27.75	21.05	33.40	82.20
"	Cold Soda—Semi Bl.	18.45	15.82	26.26	60.53
Aspen	Groundwood	16.40	—	23.89	40.29
Spruce	"	41.40	—	22.49	63.89
Aspen	Chemi—groundwood	25.25	3.03	24.34	52.62
Straw	Lime—corrugating bd.	18.80	1.38	26.14	46.32
Bagasse	Soda—board grade 55% yield	17.00	15.10	27.43	59.53

Investment and Working Capital per ton per day

(100 ton mill basis—larger units would cost proportionately less)

Process	*Investment*	*Working Capital*
Groundwood Unbleached	$25,000	$15,000
" Bleached	33,000	
Cold Caustic Soda Unbleached	25,000	16,000
" " " Semi-bleached	34,000	
Neutral Sulfite Unbleached	40,000	16,000
" " Bleached	49,000	
Sulfate Unbleached	60,000	25,000
" Bleached	73,000	
Sulfite Unbleached	50,000	25,000
" Bleached	58,000	

At the Western Michigan U. conference, Dr. R. A. Diehm, professor of paper technology, WMU, distributed tables giving average costs of making sulfate, sulfite and neutral sulfite, groundwood and cold caustic soda pulps. The analysis was described as fitting the Lake States better than other sections, but may be applied nationally.

Dr. Diehm pointed out that only a few years ago, 90% of all pulpwood came from coniferous woods. Consumption of pulpwood is expected to reach 47,500,000 cords by 1975, of which 7,900,000 will come from waste wood products, he said. Use of hardwoods will increase. Dr. Diehm predicts cold soda will be more widely used. Straw may soon be extinct as a raw material but bagasse is looked on more favorably. Improvements in high yield processes are expected.

DR. DIEHM: "More cold soda pulp will be made . . . high yield processes will be improved."

range is 6,000,000 to 12,000,000 btu per ton of pulp, depending on wood used and other factors.

How Pandias are Doing . . .

Walter Zimmerman of Black-Clawson Co. was asked whether any degradation of pulp strength resulted from the screw feeder in the Pandia Chemi-Pulper. He said this had happened with early designs because the compression ratio was greater. Now the pressure is just sufficient to split the chip and causes no degradation. Several units are making a total of about 70,000 tons a year of bleached kraft. Steam consumption per ton of kraft is about 1,500 lbs. and power requirements per ton are about 1 hp.

Available Mill Sites in Michigan . . .

Dr. Hereford Garland, director, wood utilization council, Michigan College of Mining and Technology, told the luncheon meeting of the Western Michigan Conference that an MCMT study reveals several suitable locations in the Lake States for a 150-ton corrugating mill. The Huss Ontonagon mill at Ontonagon, Mich., had its beginning in an MCMT report.

As a result of hardboard and insulating board studies, Celotex Corp. started its board mill in L'Anse, Mich. Celanese Corp. is interested in possible use of aspen for dissolving pulp for acetate. Timber owners are supporting a project evaluating the possibility of producing milk carton stock with mostly hardwood pulp. Prescott Co. of Menominee is testing a machine for debarking pulpwood, developed by the MCMT department.

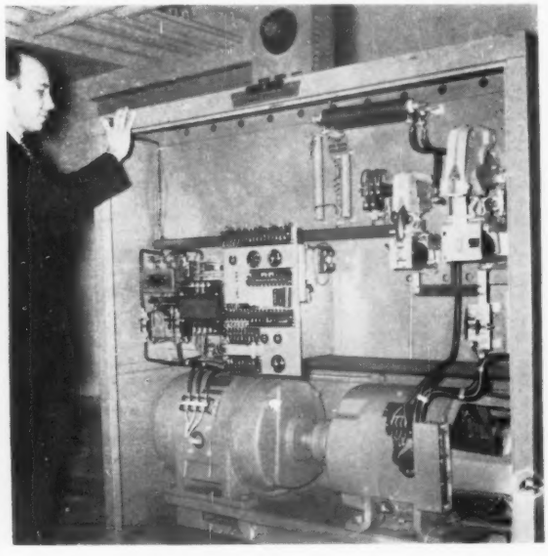
A 200-ton per day mill using 50% hardwood and 50% softwood could be placed immediately in at least one place in Michigan without increasing wood costs, Dr. Garland said.

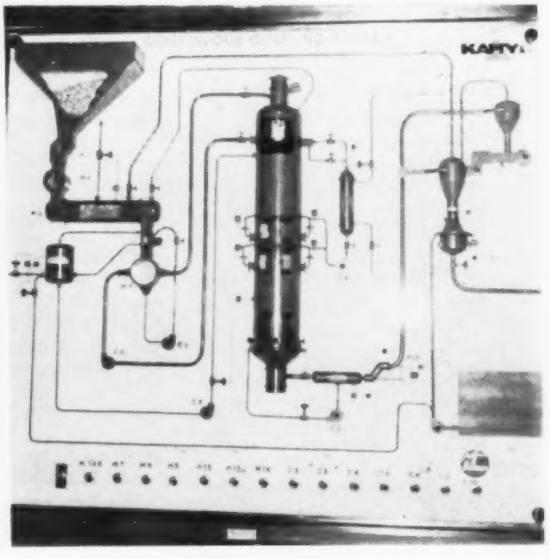
"We are Back to Normalcy" Grandbois Says in Kalamazoo

"We are back to normalcy for the first time in many years—manufacturing is now a tool of sales," Morlan Grandbois, market research mgr. for St. Regis Paper Co., told the annual midwinter joint Supts.-TAPPI dinner meeting at Kalamazoo. A turnaway crowd of more than 450 heard him expound a "marketing management concept, which means management accepts the philosophy that every decision is made in the customer's needs."

Back in his old home territory, where he started with Rex Paper Co. after Kalamazoo College, and worked successively for Bryant Paper, Time Inc., and finally, St. Regis, he brought up a close-to-home problem when he said this concept of "close cooperation of management, sales and production, coordinating all marketing ideas for the long pull, would save companies

PULP & PAPER Pictures of New Equipment





Drive Equipment for Paper School's Machine . . .

This General Electric Speed Variator with Static exciter and static speed control regulator is provided for a new 24 in. full Fourdrinier machine being made for the Western Michigan University by Wheeler Roll Co. Ed Hammerstein, at left, G.E. application engineer from Detroit, is touching starter button for generator. Above enclosure are start, stop and speed controls. Dave Gearhart, G.E. user industry sales manager, Kalamazoo, planned this 15 hp unit to give students equipment as nearly like that used for the big modern machines as possible. The machine, twice as wide as those at Maine and North Carolina paper schools, also the lab machines at Kimberly-Clark and West Virginia companies, will have new Rhoads nylon sandwich belting, giving better control on cone pulleys.

Model of Kamyr Continuous Cooking System

Starting at top left is chip hopper, chip meter and low pressure feeder. Below that is chip chute drop-legging to high pressure feeder. In middle of model is the digester, separator at top and scraper at bottom. Small cylinder at right is heater. Below and to right is strainer and sluice. Blow tank is at right of picture. Seven are operating in Sweden, three in France, two in Italy, one in England, two in Australia, one in New Zealand, three in Finland, five in Japan, two in Canada, three in U.S. Five more in Japan, two more in France and one more in U.S. (Eastern Corp.) are going in. Biggest are 300 tons capacity at Gulf States' Demopolis, Ala., mill, two 250's at Hinton, Alta., and one 250 at Rosenlow & Co. in Finland. (See PULP & PAPER, Sept., 1957, p. 52 for description of operation.)

from becoming marginal."

One reason why the paper industry "is a little off balance in relation to supply," he said is "the number of top executives who came up through engineering and finance, and very few through sales." As a result, he said, big facilities have been built with the idea that "some magic springs would keep sales going. But these reservoirs have dried up a bit."

This industry is unusual, said Mr. Grandbois, because "not everyone can get into it." It takes a $2 investment for $1 in sales, and mills are now being built at cost of $80,000 per ton of capacity. "Investors will be those few who take a long term view and expect only a reasonable return." Contrasting with other industries, this industry's resources are not being depleted, but being constantly replaced and its operating ratio of 93% for the last ten years is higher than other industries, he said.

Noting that many in his audience were sons and grandsons of Kalamazoo paper industry pioneers, he said "this area is the largest consumer of paper stock in the U.S.A."

Albert E. Bachmann, former TAPPI president and now president of the American P & P Mill Supts. Assn., told of efforts to make TAPPI more practical and the Supts. Assn. more technical. He mentioned the brightness tester as the greatest recent technical development.

Theme for Boston Convention . . .

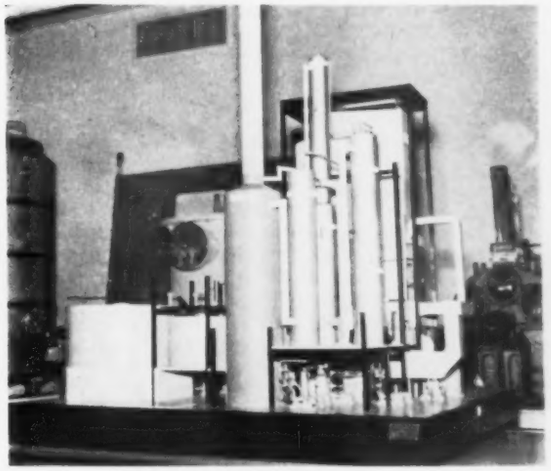
After the meeting Mr. Bachmann told PULP & PAPER the theme of the Supts. national convention in Boston's Statler hotel, June 3-5, will be cost reduction. Management training, placement psychology and human relations in industry will be other top subjects and it is expected that speakers will be drawn from Harvard, M.I.T. or other schools in the Boston area.

Olin Callighan, paper industry sales mgr. for Minerals & Chemicals Corp. of America and member of TAPPI's executive committee, mentioned a half dozen regional TAPPI groups recently organized—the new Virginia-Carolina section, and new districts in San Francisco, Boston, St. Louis, in Ohio and Tallahassee, Fla.

Toastmaster William A. Kirkpatrick, vice pres. and director of research and development, Allied Paper Corp., commenting on the daytime technical program at Western Michigan U., said "it is a thrill to see how far along the university has come in pulp and paper technology." He observed that Mike Redmond was founder of the Michigan winter meeting 23 years ago.

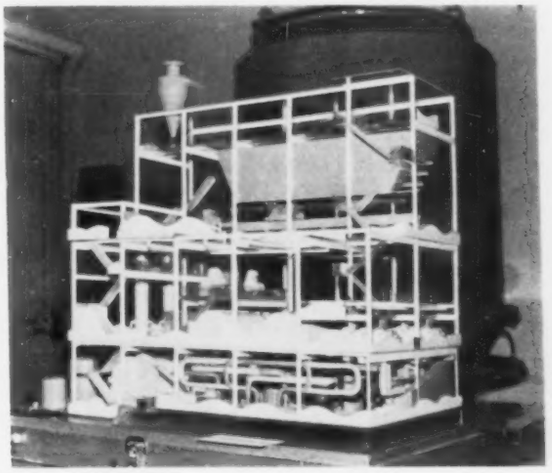
John D. Dickson Jr., of Stowe-Woodward Inc., responded as 1957-8 chairman of the industry affiliates committee. Mr. Bachman recalled that he gave his "first order" to Mr. Dickson.

and Plant Models on Display at Western Michigan U.



Recovery of NSSC Liquors by Mead Process . . .

Low tanks at left are for clarifying. Highest stack is model of 5 in. dia. glass-lined, glass-coated stack for sulfite tower. Next highest is precarbonation tower. Other towers on platform are carbonation towers. A kraft-type recovery boiler is in background in dark frame. At Mead's Lynchburg, Va., mill, of which this is model, the boiler is a 250 ton-day unit, at 600 psi, 750° F. Babcock & Wilcox Co., which is licensed to build these new recovery plants, provided this model for the Western Michigan U. conference. Smelt from furnace is dissolved to form a kraft type green liquor of high sulfidity. This is contacted in packed carbonation towers with recovery furnace flue gases. The liquor absorbs carbon dioxide and liberates hydrogen sulfide into flue gases, converting sodium sulfide to sodium carbonate and bicarbonate. Gas returns to furnace for burning. Carbonated green liquor scrubs all flue gases in a packed sulfiting tower, recovering SO_2 which forms sodium sulfite in the liquor. Liquor from this tower is suitable for cooking. Expectation: Recoveries of 92% sulfur and 97% sodium supplied to system as evaporated liquor and makeup.



Model of Coosa River's Cold Caustic Soda Pulp Mill

One man can run this semi-chemical pulp plant of Coosa River Newsprint Co. It has versatility and may run other processes besides cold soda. Note large chip storage bin at top level. Three vertical digesters are on second level in left rear area. Two large washers are in foreground on that floor. While the cold soda process originated at the U. S. Forest Products Laboratory, Kimberly-Clark engineers are reported to have done considerable original work and modification in this plant at Coosa Pines, Ala. Behind this can be seen a model Shartle-Dilts Hydrapulper, also on display at Western Michigan U.

There were also illustrations or models at Western Michigan U. of the Bauer and the Sprout-Waldron continuous digesters. Also Bauer's double-disc mill and pump through refiners and Pressafiners. The new machine will have E. D. Jones beater and jordan.

SWALLOWED BY EXPANSION, old mill is surrounded by machine room (center), recovery (left) and warehouse

What it takes to produce

1,000 Tons of Board a Day

St. Regis' "Seminole Chief" is the undisputed star of this expanded mill—but it takes a lot "behind the scenes" too

By WILLIAM F. DIEHL, JR.
Southern Editor, PULP & PAPER

—Jacksonville, Fla.

● It is never safe in this fifth largest industry to refer to any machine or mill as the "largest" or the "first" or the "most." Nine times out of ten if you do some one will prove you wrong in one way or another.

But the recently completed expansion at the St. Regis Paper Co. at the north end of this city might easily be the greatest "percentage" increase in this tonnage class in history. In one $40 million swat, St. Regis boosted the capacity of this mill from 300 tons a day—to 1,300 tons a day!

And it was accomplished with one machine.

From the gigantic pressure headbox of its fabulous new machine to the winders, some two city blocks away, and from the floor to the top of its towering calender stacks, from its sprawling new woodyard to the mushroomed recovery area, bigness symbolizes the change here.

They call this machine the "Seminole Chief," a name created by an employe during a contest. And the name certainly fits: "Seminole"—because Florida is the home of the once powerful and formidable Seminole Indian; "Chief" because any machine capable of producing more than a thousand tons of paperboard a day is surely that.

St. Regis began producing paper here in 1953 with a machine making slightly more than 300 tons a day. At its other Southern mill in Pensacola, production averages about 750 tons. The combined output of these two mills may well be in excess of 2,000 tons a day.

Although St. Regis is conservative when speaking about the size of this new machine, papermaking on such a scale is amazing to even veteran papermen. One superintendent from another big Southern kraft mill stopped dead in his tracks when he caught his first glimpse of "The Chief." He walked the length of the machine and back without saying a word, shaking his head slowly, then said: "If I die tomorrow, I can tell St. Peter I've seen everything."

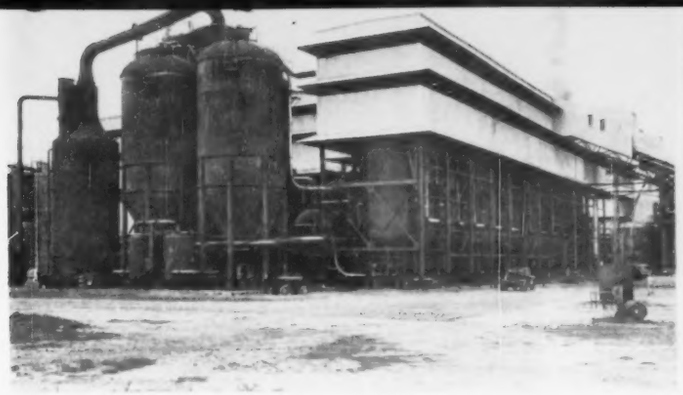
Fill 1,000 R.R. Cars a Month . . .

Collectors of incidental information might be interested in knowing that the annual production from this one machine would fill 12,000 freight cars —that's a train 140 miles long. The increase in tonnage from this mill not only covers the requirements of St. Regis' 14 box plants, stretching from Texas to Pennsylvania, but will leave a great deal of production available to outside customers. And from its location in Jacksonville, shipping is both inexpensive and swift, not only to domestic markets, but to export centers, a natural outlet for "Seminole Linerboard."

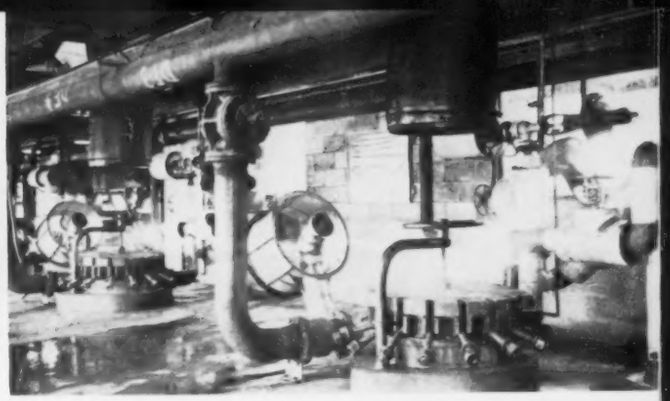
Addition of the Seminole Chief to St. Regis' growing domain is the second in a year (See "What's New About Hinton," page 48, PULP & PAPER, Sept., 1957) and is expected to add substantially to the firm's sales.

Some Features of Jacksonville Expansion

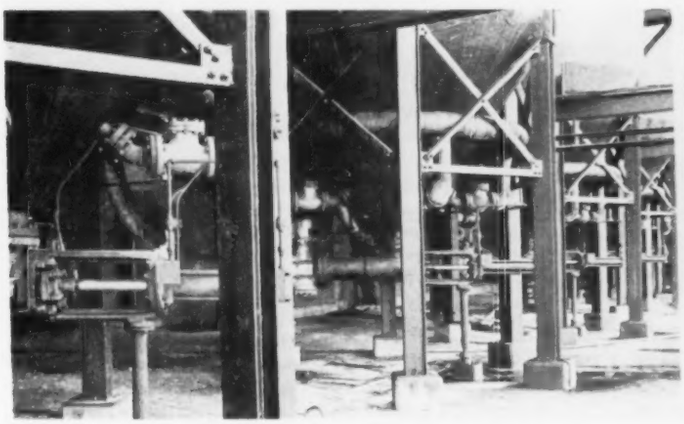
- One of world's largest Fourdrinier machines
- Possibly the largest fan pump in operation
- Wire pit of unusual design
- A record 380 ft. of dryers
- Unique stock preparation through nine refiners
- Modified hot stock refining
- New flume system and greatly expanded woodyard
- Special design air gases precipitator
- Increased recovery facilities
- Two six-effect evaporators added to existing one
- Extensive stainless steel and corrosive proofing
- Steam turbine generator, large enough to supply a city
- Unique roll handling system
- Something new in roll storage



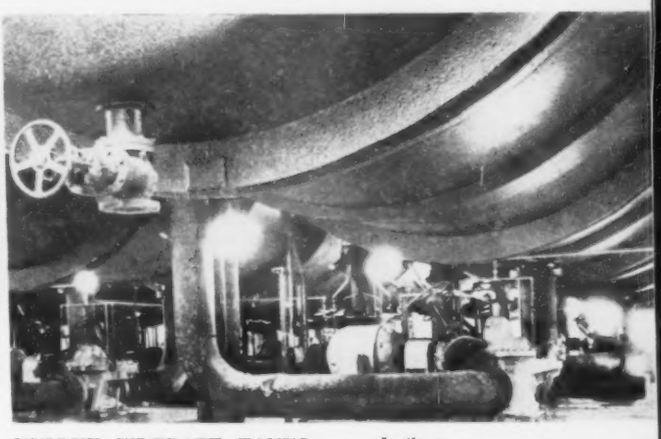
THOUSAND TONS OF BOARD STARTS HERE in eight 4000 cft. Chicago Bridge digesters, 46 ft. high, 12 ft. dia., with two-inch nominal thickness. Covered with two-in. of foamglass, they have Foster-Wheeler heat recovery system.



DRUMS PREVENT SPLASHING as chips delivered from 48-in. Link-Belt conveyor through tripper and chip chute. Chips tumble through open-end drums, are thus channeled into digester. Mason-Neilan controls are in room at rear.



LIKE A PERSPECTIVE DRAWING, long line of Yarnall-Waring hydraulic blow valves empty cook into two Chicago Bridge blow tanks. The tanks, both 68½ ft. by 24 ft., are large enough to handle more than peak cook loads.

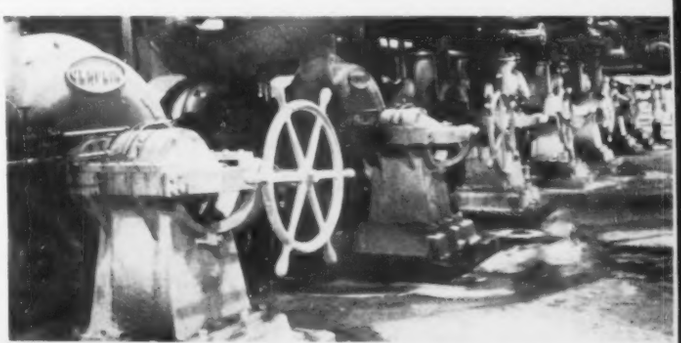


UNIQUE FILTRATE TANKS were built to conserve space, are horizontally suspended and baffled for separate filter stages. Only two of the five 17 ft. dia. CB&I tanks are seen. They are all serviced by Goulds pumps.

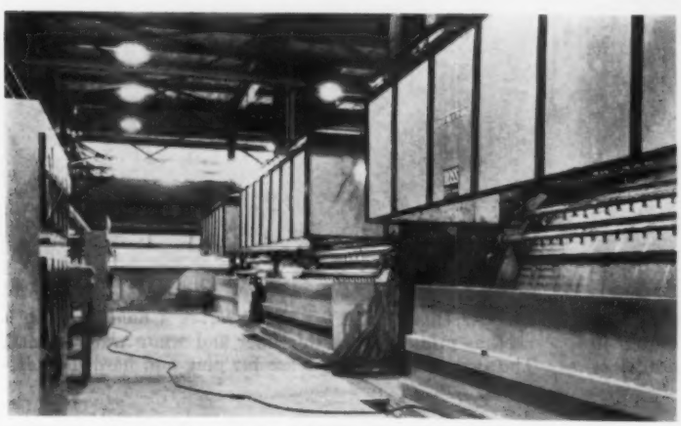
P&P Camera Captures Cooking Cycle

"Modified" Hot Stock Refining in Pictures . . .

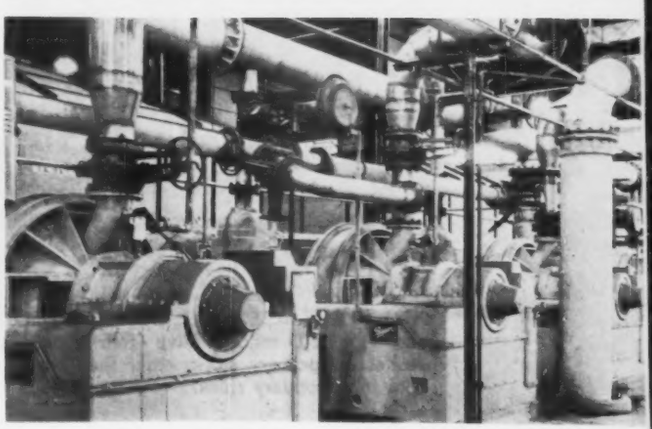
To increase its pulp yield, St. Regis is currently using what it calls a modified hot stock refining process, running both pine and hardwood through a series of refiners, washing, refining and finally screening. Yield is now 54 or 55 instead of the normal 47. Here's how it's done . . .



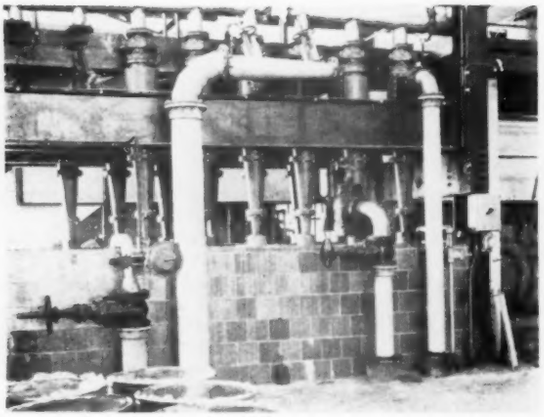
HIGH YIELD BEGINS in seven Emerson Claflin refiners used for prebreaking to give better fiber separation, break up bundles; two for topliner, five for base.



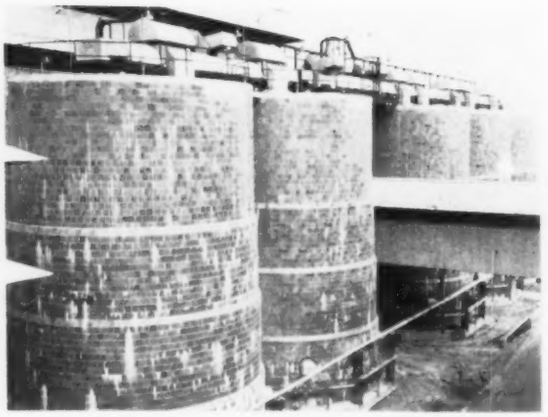
THREE WASHING UNITS COME NEXT, first Impco vacuum washer is for topliner stock, the other two for base. The topliner washer is 16 ft. wide, base washers 20 ft.



BASE STOCK IS REFINED AGAIN in three Bauer Brothers 440F-44 in. pressure disc refiners. The first two are for topliner. Base stock then goes to stock chest.



TOPLINER STOCK IS CLEANED in these 13 Bauer Centri-Cleaners. It is then ready for delivery to either machine or high density chest. Barrels contain E. F. Houghton & Co. defoamer. Ingersoll-Rand pumps white water, Allis-Chalmers stock.



TWO HIGH DENSITY STEBBINS CHESTS in foreground are for topliner stock, other three for base stock. These and wash and stock chests are all equipped with Impco agitators. Stock is conveyed on Link-Belt rubber belt conveyors.

Stock Prep: How Different Pulps Are Processed

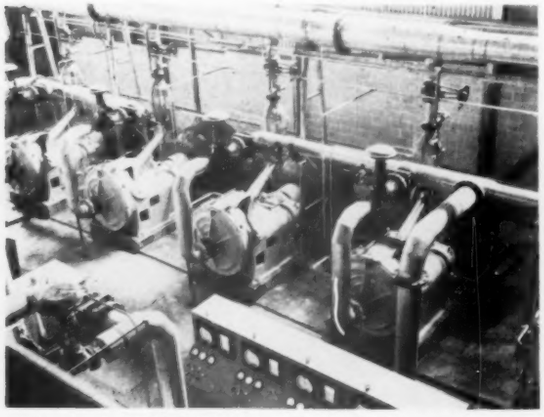
One 11½ ft. by 20 ft. Impco valveless filter on the operating floor is connected so it can be used both as a white water saveall and as a decker for high density base stock. Consistency of stock is regulated throughout the stock preparation system by DeZurik regulators. Hardwood and pine stock is thickened over two smaller Impco deckers, located adjacent to the saveall decker. Stop step control is also afforded primary and secondary stock going into the refiners by DeZurik regulators.

Machine and mixing chests, white water pit and broke pit are all Stebbins Semplate-lined with white tile bottoms. The Semtile broke chest has midfeathers and one vertical and two horizontal-type Impco agitators. Stock prep bridge crane is a 12-ton trolley Ederer designed to accommodate two 12-ton cranes if necessary. Allis-Chalmers, Goulds and Ingersoll-Rand stock pumps are used. Johns-Manville Transite piping and Rives-fabricated stainless steel are used extensively.

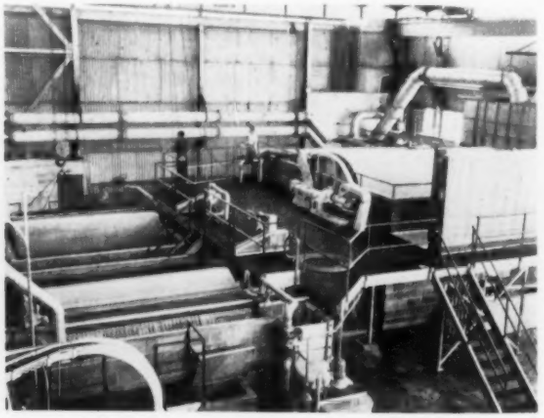
Primary and secondary stock is refined through a battery of nine E. D. Jones & Sons Double-D refiners—five for primary and four for secondary stock. The Double-D is a fully pressurized refiner which utilizes an "Equa-flo" principle permitting two-stage refining in one machine. Because it has twice the refining area, it will do the work of two refiners.

The five primary refiners have an 850-ton-a-day capacity at 4.5% consistency. Pine kraft stock flows into a 13,200 cu. ft. Stebbins Semplate machine chest with midfeather and a single Impco agitator.

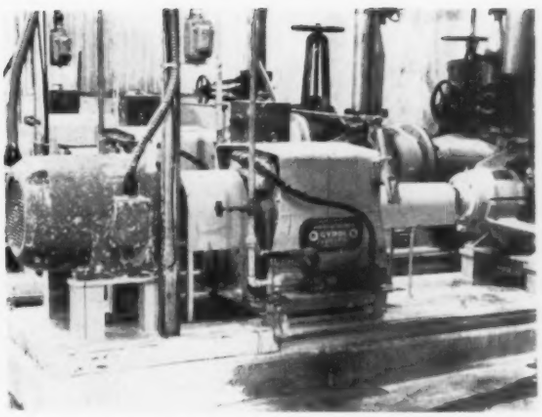
The secondary battery is fed from a mixing chest 6 by 18 ft. Soft cooked pine and hardwood furnish can be fed into the chest either separately or in controlled mixture. It is proportioned by Foxboro magnetic flowmeters acting upon American Blower variable speed couplings located on Allis-Chalmers stock pumps leading from the hardwood or pine chests. The stock is fed into one of the four refiners, all of which are connected for parallel or series operation, before discharging into the 5,200 cu. ft. secondary machine chest.



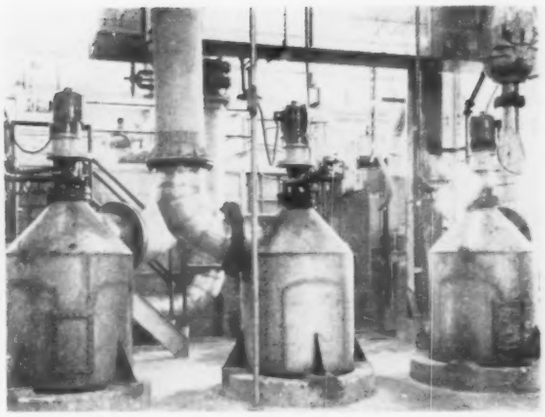
TWO STAGE REFINING IS CARRIED OUT in nine Jones Double-D refiners. Five (four shown) are used in parallel for primary stock, other four are in parallel or series for secondary stock.



IMPCO DECKER AT RIGHT serves a dual purpose, is used as primary stock thickener and white water saveall. The two smaller deckers are for pine and hardwood secondary stock.



PROPORTIONING of hardwood, pine is done by Foxboro magnetic flowmeters acting upon American Blower variable speed couplings on Allis-Chalmers stock pumps.



STEP CONTROL OF STOCK going into primary and secondary refiners from deckers is afforded by these three DeZurik consistency regulators, located behind the deckers.

"Beefing Up" the Recovery Area . . .

The twin sets of six-effect Goslin-Birmingham evaporators were added to the existing set, with Viking pumps for soap handling. A salt water system using Elliott back-flushing type strainers and Goulds booster pumps supplies cold water for condensers.

Because Jacksonville Municipal Airport is nearby, major consideration was given the air pollution problem. The two new Koppers precipitators were designed to supplement the two double-chamber precipitators existing when expansion began. This system is so designed that any three pairs of the four can handle the total load from three recovery boilers, leaving the final pair as a standby if any of the others require servicing. The chambers are arranged so that slide gates, ductwork, etc., are used to by-pass, close-off or open the chambers for service and maintenance while the adjacent chamber carries the full load.

A Dorr-Oliver causticizing plant includes four causticizer tanks, a white liquor clarifier tank, a two-stage lime mud-washer tank (45 by 30 ft.) and two lime mud storage tanks (20 by 20 ft.), a green liquor clarifier tank and a dregs washer tank. All are covered with Earl Paint Erkote 3X Mastic paint.

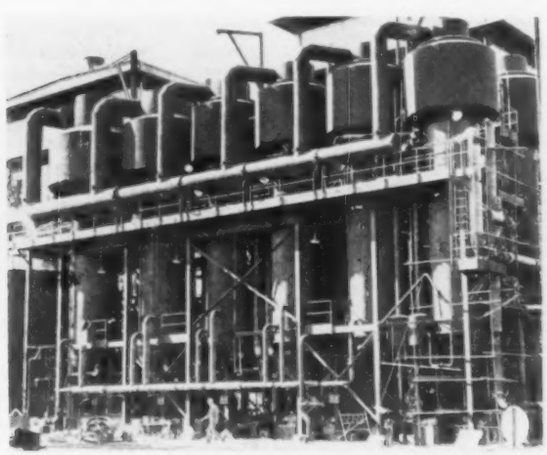
The 7 by 50-ft. Allis-Chalmers 200-ton rotary lime slaker has an integral type classifier which eliminates any extraneous classifier. Minimum maintenance is needed since there are no moving parts other than the substantial drive and external carrying mechanism.

Lime and liquor are set at one end of the slaker and agitated by the internal blade. Slaked lime in suspension passes through, overflows to the circular launder, and is pumped to the rest of the system.

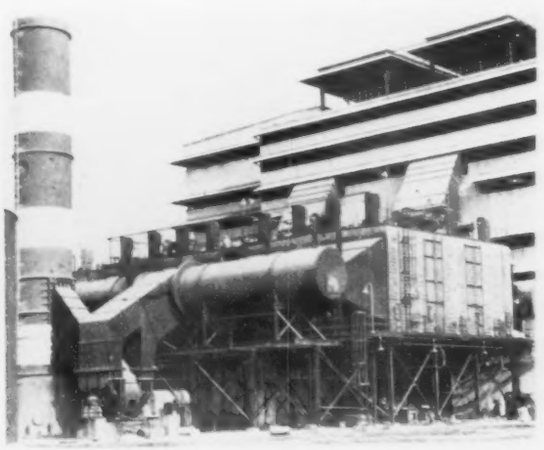
Rejects are automatically conveyed by the agitating blade to the conical discharge end. Here, spirals reject the grits into a hopper. Grits can be sprayed in the final portion of the cone discharge to remove and return to the slaker any adhering alkali.

An Airveyor carries lime from the rail spur. Two new 9 ft. by 250 ft. long Traylor kilns were added.

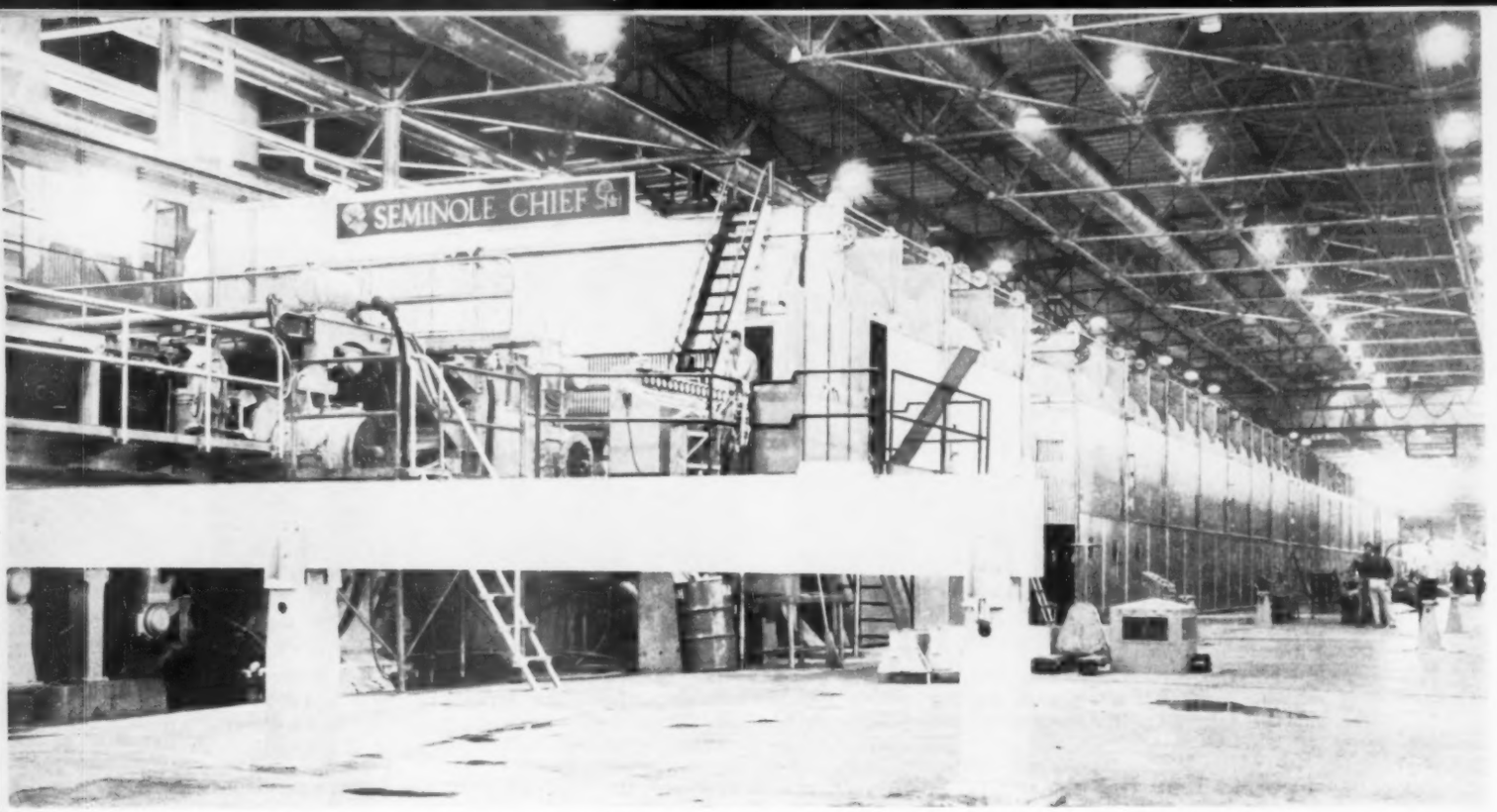
The two new Combustion Engineering Inc., recovery boilers with D. J. Murray cascades, arranged one above the other, will each burn 1,150,000 lbs. of dry solids a day, producing about 180,000 pounds of steam per hour each at 625 psi and 750 F.T.T. These are closely controlled by Bailey instruments.



TWO SETS OF EVAPORATORS are Goslin-Birmingham six-effect units, were added to old set. They are served by Labour and Worthington pumps.



BECAUSE OF NEARBY AIRPORT, special attention was directed at air pollution. Two Koppers precipitators are arranged with existing two, so one is always on "standby."



WITH THIS ONE GIGANTIC 276 IN. MACHINE St. Regis has more than quadrupled production at Jacksonville.

The Machine: 400 Ft. Long

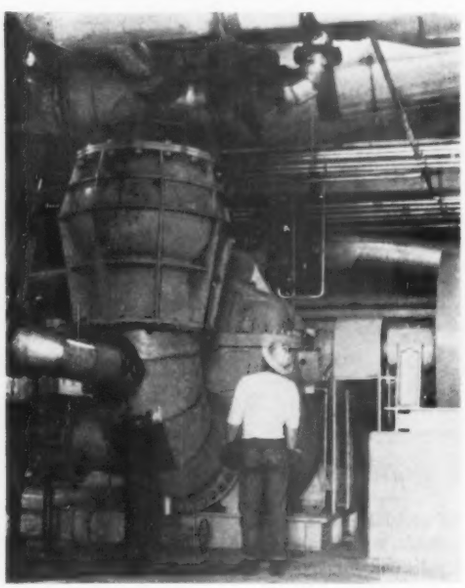
The "Seminole Chief" is a staggering piece of machinery. From its pressure headbox to the rewinder measures some 400 feet.

Though reluctant to claim any of the "biggest" or "longest" equipment in existence, here are some figures which just about speak for themselves:

The Fourdrinier wire is 276 in. wide, 165 in. long, certainly one of the longest wires ever built. The Fourdrinier rails are believed to be the longest now in operation. It has 380 ft. of dryers, believed to be a record. The 50,000 gpm Ingersoll Rand primary headbox fan pump is believed the largest in operation in a paper mill. These facts give an idea of the enormity of the machine. Little wonder veteran papermakers stop and stare when they catch their first glimpse of it.

Stock is channeled to the big fan pumps by Allis-Chalmers stock pumps. Both the primary and secondary Ingersoll-Rand fan pumps are equipped with Ferguson throttling stuff gates, remote controlled from the main operating panel by means of selsyn controls, and DeZurik stuff box consistency regulators. The secondary fan pump is 10,000 gpm, direct-connected to a 250 hp, 900 rpm General Electric motor.

Dilute stock flows from a Beloit pressure headbox equipped with two stainless steel headless rectifier rolls to the Fourdrinier.



ONE OF THE BIGGEST . . . this Ingersoll-Rand fan pump to the primary headbox will handle 50,000 gallons of stock a minute.

Fourdrinier Section . . .

The removable Beloit Fourdrinier permits changing the wire without removing the inside rolls. The section has a 38 in. diameter breast roll and a stainless forming board with St. Regis Panelyte blades and mountings. The hard-rubber covered aluminum table rolls have stainless deflectors, Panelyte-tipped, and are carried in non-shaking rolls. Of the 12 stainless suction boxes, six wet boxes are covered with Panelyte covers (slanting drilled) and six dry boxes are wax-impregnated end-grain maple. There is provision for a thirteenth box.

Secondary stock flows onto the wire through a Valley Iron Works secondary headbox.

The wire is driven by a 38 in. bronze turning roll as well as three return wire rolls. The section also features a 54 in. bronze couch with a 20 in. wide suction area set level to the wire, a 32 in. open-end dandy roll spiral-covered with monel and a soft Neoprene covered lumpbreaker, 34 in. diameter. All the flat boxes are vacuum controlled and remote controlled with stainless steel separators and Transite drop legs. Because of the length of the wire, double stretch is

provided, one a fixed running position slack take-up roll, the other an adjustable wire tightening roll.

Unusual Wire Pit . . .

To provide the best stilling effect for release of excess air, the Stebbins tile wire pit is unusually deep with suction inlets for the primary and secondary fan pumps separated from the incoming white water at the saveall pans and from the seal pits by a longitudinal dam on either side. Thus white water runs the length of the Fourdrinier, returning under a dam and through a central channel to pump inlets. Overflows are in each end of the side channels to the couch pit and a skimming weir removes foam from the end of the center channel.

The Press Section . . .

The vertical straight-through type wet press section has two presses, each equipped with a 44 in. diameter rubber-covered suction roll with brass shells. The suction rolls are drilled with a special spiral pattern to reduce noise in the machine room. Each of these presses is also equipped with 42 in. rubber covered top rolls and plain and wormed rubber covered rolls. Vickery felt conditioners with four jordan reverse type heads are provided for each press.

The third press section is a hot press, located between the first and second dryer sections, featuring similar equipment as the wet presses with oscillating doctors provided for the three press top rolls. Seven Roots-Connersville blower units are used for water and air removal.

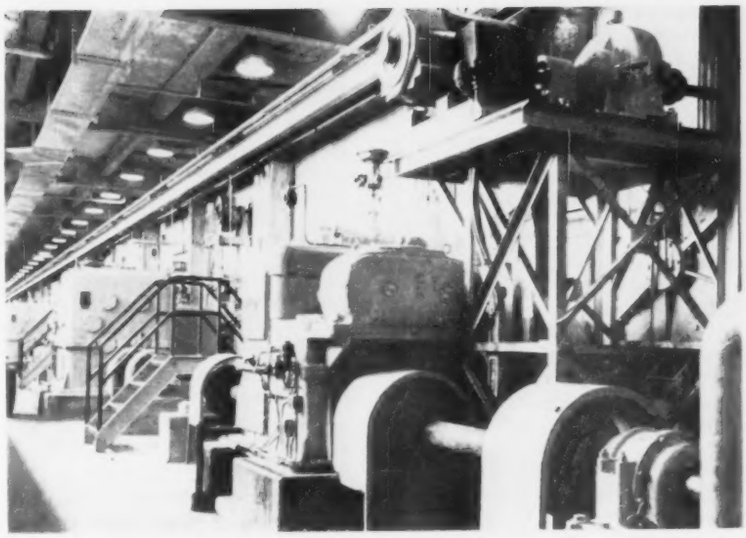
That Long Line Of Dryers . . .

The six dryer sections include 97 paper dryers, 14 Feeney felt dryers and 10 return felt dryers, each 60 in. diameter and operating at 125 lbs. pressure. They are equipped with heavy-duty SKF spherical roller dryer bearings of the self-aligning type, drilled for center lubrication. Paper and felt dryers are also equipped with Beloit high-speed condensate remover and duplex steam fittings, each with Barco flexible joints.

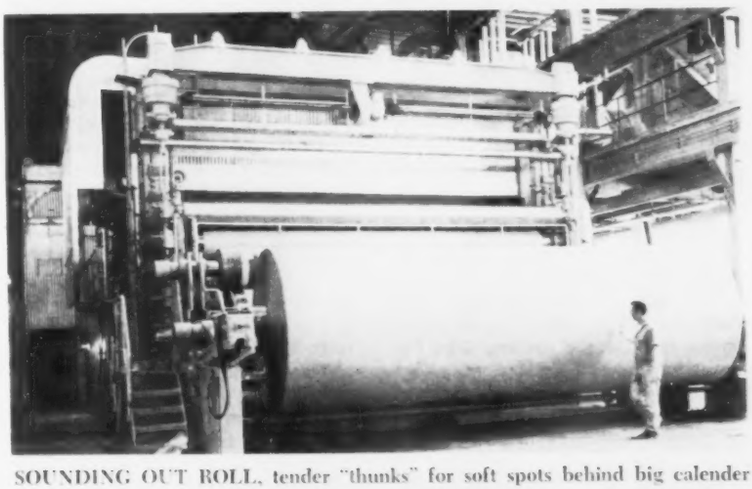
Lodding doctors are on the first nine dryers, the last top dryer of each section, all the bottom dryers on the fifth section and the first top dryer of the last section. The doctor in the sixth section is air-loaded.

The size press is located between the fifth and sixth dryer sections. Its top roll is carried on swing arms with pivot parts and air-loading equipment for controlling nip pressures. The two rubber-covered rolls are 42 in. dia.

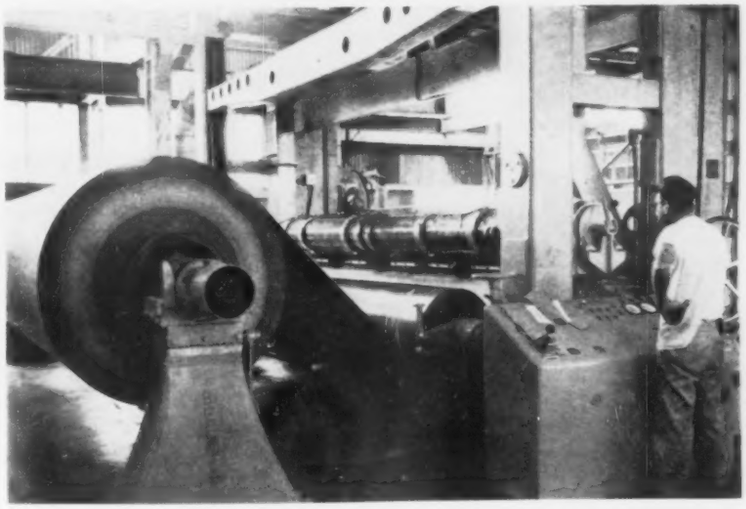
Two open side calender stacks with



BELOIT DIFFERENTIAL DRIVES. Link-Belt PIV units turn big machine



SOUNDING OUT ROLL, tender "thunks" for soft spots behind big calender



WHIRRING WINDERS are individually driven and braking is regenerative

Farreloy rolls are followed by heavy duty reel which takes 96 in. of board. King rolls are 60 tons in stack, 40 in diameter. There are four 60 in. dryers between the stacks.

Atomized Lubrication . . .

Although not new in industry, the principle of atomized lubrication is just beginning to appear in paper mills. The Beloit circulating oil system on the "Seminole Chief" is equipped with Norgren Micro-Fog atomizers. Oil is atomized in a central lubricator by compressed air into minute particles and is carried in this atomized state from the reservoir to individual bearings and other parts to be lubricated. This system is intended to obtain maximum lubricating efficiency from each drop of oil while deriving cooling benefits from the air at the same time. Operators cited these advantages of this type of system: Extremely low pressure discharge, uniform minute oil particles, very low oil consumption and equal oil distribution from multiple feeder lines over long distances.

The Beloit system has a roll type filter and provides lubrication to all rolls in the dryer section through oil sight feeds. Ten sump return stations are part of this system.

It Takes A Lot Of Air . . .

The Ross Engineering totally enclosed hood is 360 ft. long, has insulated aluminum panels on the top and corrugated aluminum front and back enclosures. On the tending side, the lower panels can be opened either manually or automatically in event of a paper break. An automatic damper on all the supply fans also bypasses air around the heater units in case of a break to provide comfort for men working under the hood. All exhaust fans, heating units and cooling units were supplied by Ross Engineering.

For removal of condensate and non-condensable vapors from the dryers, a Ross Midwest Fulton Corp. forced vapor circulation system is also provided. Drying is controlled by Foxboro recording pressure controls on all but the fourth and sixth sections which are equipped with Stamm moisture control.

The machine is driven by Beloit differential-type mechanical drive with separate differential gear units at the turning roll, first press, second press, hot press, size press, each of the six dryer sections, the two calenders and the reel. Link Belt PIV variable speed units serve each drive. Power for the lineshaft to these differential units comes from a 3,600 hp General Electric multi-valve, multi-stage, non-condensing turbine. G.E. variable speed d.c. helper PIV drives are installed on the dandy roll, lumbreaker, couch, turning roll, wire return, hot press and size press rolls.

THREE TIMES PROCESS WATER IS TREATED. . . . At left, the new process water treatment plant, bolstered by three new Infilco Accelator units for removal of calcium carbonate boosts total capacity to 40 million gals. a day. Mill formerly had only one Accelator, right rear. In background is new 2 million gal. treated water reservoir, 162 ft. in dia., 14 ft. high.

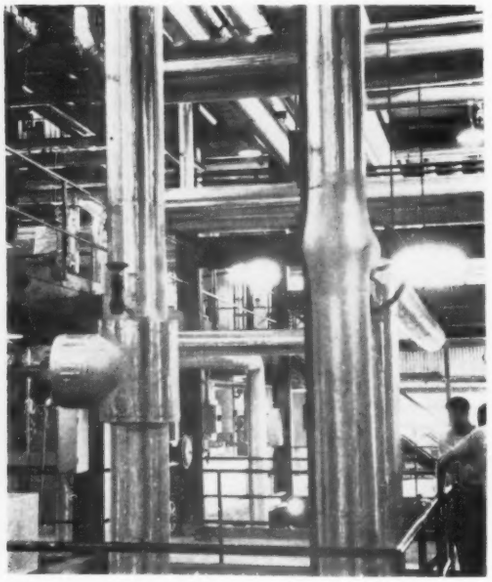
End of The Line . . .

The machine has two Beloit open-side calender stacks with Farreloy rolls. King rolls are 60 tons in stack and 40 in. in diameter. Queen rolls are 24 in. diameter and the intermediate rolls are 18 in. Four 60 in. calender dryers are located between the two stacks and electric motor-operated roll lifts serve each stack.

The Beloit Model L winders have individual drives and a maximum operating speed of 6500 fpm. Two winder drums are 24 in. in diameter. The backstand will accommodate a 96 in. roll and wind 60 in. diameter rolls. Braking on the winders is regenerative.

How Broke Is Handled . . .

Broke is channelled from the reel, either of two calender stacks and from the winder, through special ducts, into a 22 ft. Shartle Brothers Hydrapulper. The pulper is also equipped with a conveyor to move broke from the last top dryer and from the machine's basement enclosure into the hopper. W. L. Rives Co. of Jacksonville, supplied the stainless steel hopper which serves the big pulper, among 250,000



PLENTY OF STAINLESS STEEL . . . a typical view in Jacksonville expansion. W. L. Rives Co., Jacksonville, fabricated 250,000 lbs. of stainless for the St. Regis additions, much of it going in pulp mill.

lbs. of stainless fabrication for the expansion.

The broke is worked down through a Shartle No. 6 Miami jordan with stainless steel filling, driven by a 400 hp General Electric motor. The jordan is between the broke storage chest and headbox of the saveall-decker, in the stock preparation area.

Ederer Engineering Co. provided three cranes in the machine room building. The reel crane spans 39 ft., 10 in., has a fixed hoist and semi-gantry track outside the reel area. It has a 28-ton capacity. Ederer also installed the 60-ton twin-box girder type machine room crane which has a span of 104 ft., 4 in. as well as an extension on the existing 30 ton crane giving it a span the same as that of the 60 tonner. An Ederer 12-ton trolley hoist so designed that it will accommodate two 12-ton trolleys serves the stock prep room.

These Were the Builders . . .

Two companies, Tidewater Construction Co. of Norfolk, Va., and George D. Auchter Co. of Jacksonville, Fla., formed the Tidewater-Auchter Co. and carried out general construction on this mill as well as supervising all sub-contracting as a joint venture. Rowland Tompkins & Sons, Inc., Hawthorne, N. Y., was piping contractor.

Stevenson & Rubens of Seattle, Wash., did the engineering work on structural and architectural design as well as handling layout, stock preparation, and process arrangements in the paper mill and roll storage area. St. Regis engineering staff did the electrical drawings for these areas.

Field layouts and inspection of the entire project was carried out by J. E. Sirrine Co., Greenville, S.C. The company also did the structural and architectural design for the pulp mill and the power plant, as well as layouts and process arrangements for these areas.

Power, Power and More Power . . .

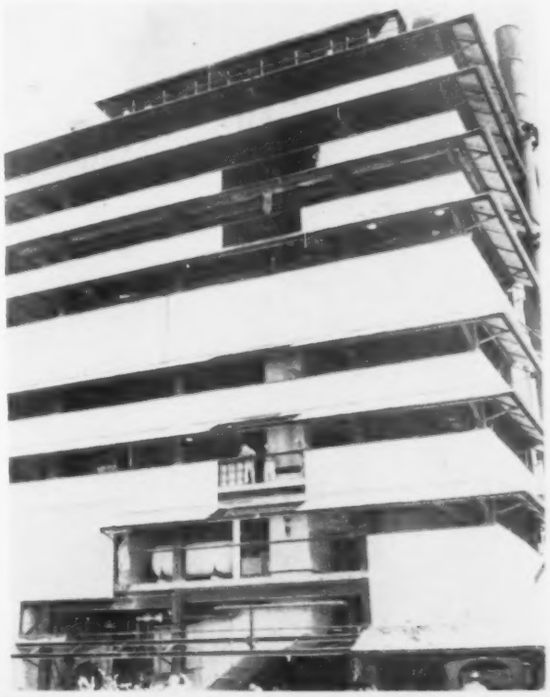
The gigantic double-extraction General Electric turbine at St. Regis is big enough to supply power for cities the size of Green Bay, Wis., or Hoboken, N.J., or Holyoke, Mass. Capable of 30,000 kw of automatically controlled extraction at 65 psig and 165 psig, it exhausts into a 19,000 sq. ft. two-pass Westinghouse surface condenser. It is cross-tied with the old systems so that steam and electrical loads may be shifted between new and old equipment.

This new steam generation system operates at the same pressure and temperature level as the original system—625 psi and 750 degrees F.T.T. Two 200,000 pph Combustion Engineering "VU 50B" power boilers, fuel-oil fired with provision for possible future gas firing were installed along with a 135,000 pph bark boiler and two 180,000 pph recovery boilers built by Combustion Engineering.

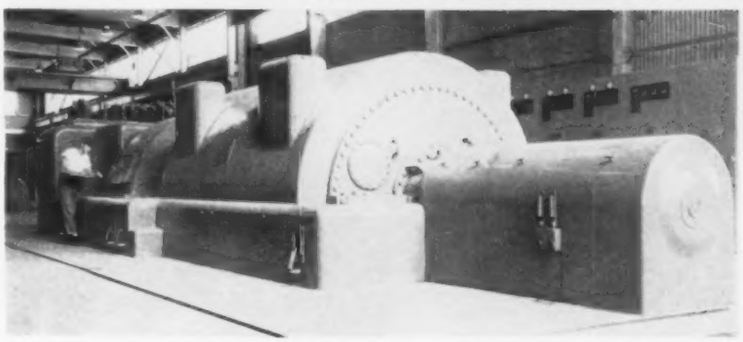
Bark boiler is supplemented by a Miller-Hofft bark storage bin with multiple screw type bark feeding machinery driven by variable speed drive units. Fly ash is collected by a Western Precipitator multiclone mechanical dust collector while a United Convevor Corp. system handles ash disposal and reinjection. Cochrane Corp. provided the continuous blowdown system.

Boiler feed pumps are big—three Ingersoll-Rand pumps, two of which are driven by 800 hp General Electric mechanical drive turbines. The third is motor driven. The continuous chemical feed pumps are Milton Roy.

Boiler makeup water is treated in a Graver hot process lime and ion exchange system with a rated capacity of 1000 gpm, capable of supplying makeup water for both the new and old boilers. The high pressure feed water heater is by Foster Wheeler.



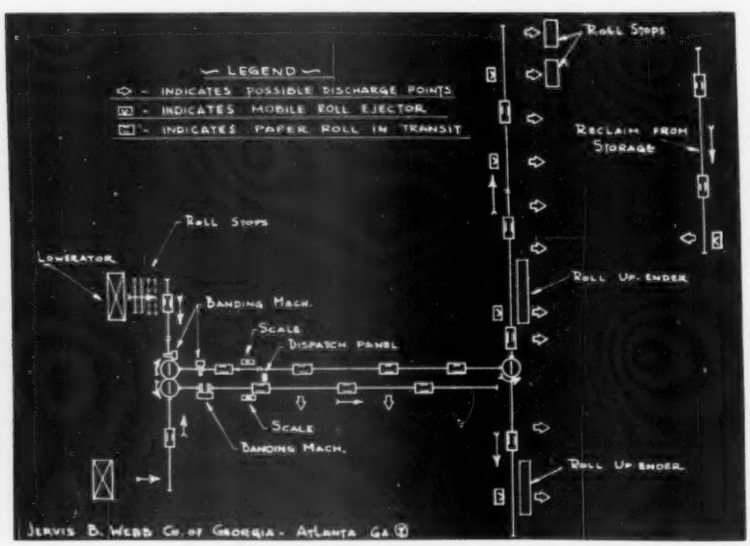
CITY-TALL BUILDING houses Combustion Engineering oil-burning boiler. Building is five stories high, constructed of concrete and steel.



LARGE ENOUGH FOR A CITY is this 30,000 kw General Electric double-extraction turbine.

FROM HIGH ABOVE FLOOR riding Ederer crane, **PULP & PAPER** Southerns Editor's wide angle lens captures sweep of roll warehouse, as first rolls begin filling its 25,000-ton capacity

New Concept in Roll Handling



FLOW DIAGRAM PREPARED FOR PULP & PAPER by Jervis Webb engineer **Jack Thompson** graphically illustrates how paper rolls are electronically controlled.

Electronic memory aids, automatic materials handling and a big warehouse help stabilize production

In a time of fluctuating markets, St. Regis is stabilizing its production at Jacksonville with push-buttons.

Working with Jervis B. Webb Co., it has devised an electronic system for conveying finished paper rolls from the machine to an enormous storage warehouse. Here, in a huge "paper hangar" (a warehouse which looks very much like an airplane hangar) it can keep a 25-day (25,000 tons capacity) supply of paperboard on hand, thus enabling it to stabilize production and maintain high quality at the same time.

One of the latest things in materials

handling, this system can be operated by only three men stationed at control points from which they can move the rolls where they want them, like the chess men on a huge board.

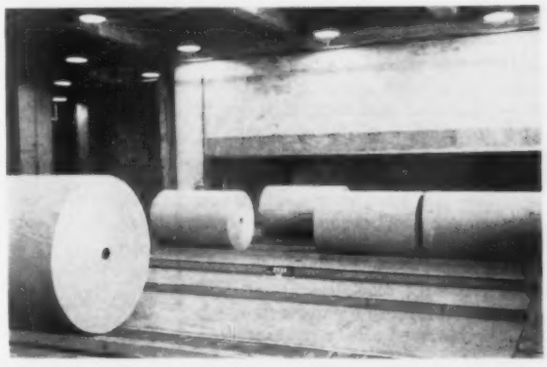
Designed and built by Jervis B. Webb Co., this electronic system enables St. Regis to maintain uniform machine speeds without necessity for shutdowns or slowdowns. Previously, for instance, the mill ran lightweight paper on No. One just one or two days a month. Now it can "cloth up" and run this grade for a week at a time, storing the excess for future shipment. Conveyors also can deliver rolls to freight cars or trucks for shipment. The system is designed for a capacity of 60 rolls per hour, from 30 to 60 in. diameter, 18 to 120 in. long.

How System Controls Flow . . .

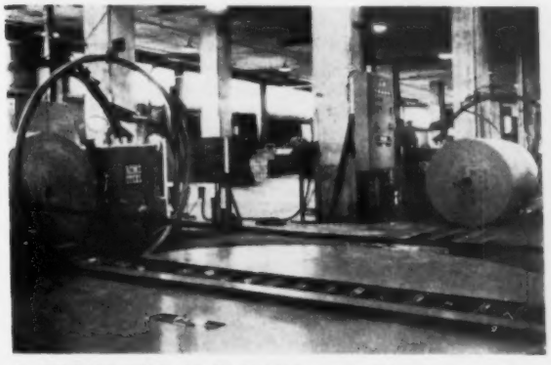
Paper rolls are lowered from the operating floor to the first floor in a Rotary Lift Co. lowerator. Paper rolls freely from an inclined plane at the bottom of the elevator and can be halted at any of five stations before it reaches the conveyor by a series of automatic stops. At one station, an operator has control over the stops, the conveyor and a turntable which changes direction of flow 90 degrees. Before moving onto the turntable, an Acme Steel strapping machine bands the forward end of the roll. It then rides around on the table, discharging on a second conveyor where another banding machine straps the back end of the roll.

A second operator then takes over, controlling the movement of the roll through Toledo scales. He then stencils a serial number on the roll. Each roll is predestined either for storage or shipment and the individual rolls are delivered to any of a dozen bins enroute for shipment, depending on the serial number and its destination. An automatic Webb device "kicks" the roll off the conveyor as it passes the bin into which it is to be delivered. When the roll is kicked off, it rolls onto a Webb upender which swings the paper roll on end for delivery to truck or r.r. cars by lift truck.

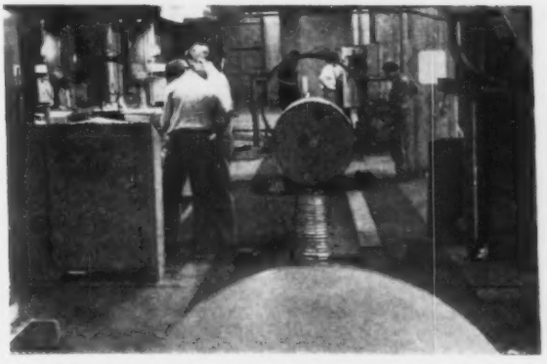
The 162 ft. long, 360 ft. wide storage warehouse is divided in half, each half served by a 10-ton overhead Ederer electric travelling bridge crane with Mansaver roll grabs. An operator in the cab of the crane lifts the roll



1. FLOW OF ROLLS from lowerator is controlled by automatic stops . . .

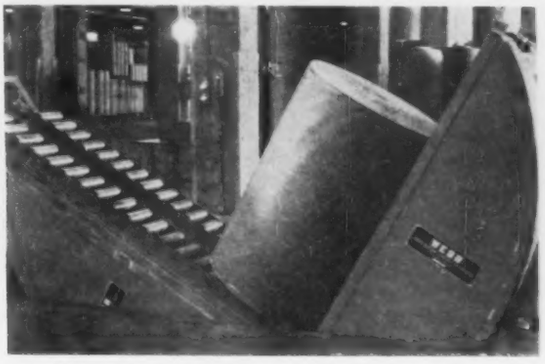


2. FRONT END IS BANDED, turntable changes direction, and other end is banded . . .



3. ROLL IS WEIGHED AND STENCILED, at Toledo scale and "memory" equipment takes over . . .

4. ROLL FOR DIRECT SHIPPING is "kicked off" electronically to upender, left . . .



5. ROLL IS UPENDED and delivered to r.r. car or truck by lift truck . . .

and "files" it on end in a predetermined area. The roll is reclaimed from storage in a reverse manner.

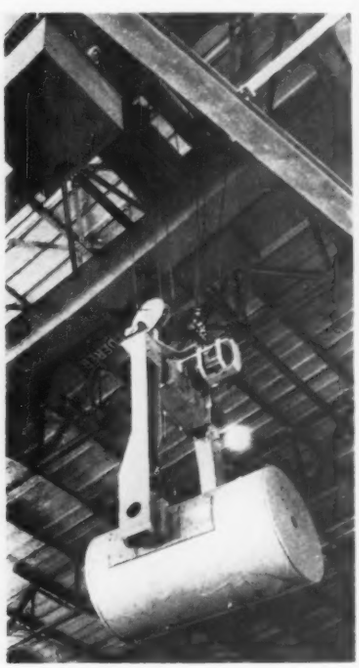
The loading docks for shipping by either truck or car are all covered to protect shipments from weather and will accommodate 25 boxcars.

What Are the Objectives? . . .

This new concept in storage, heartily approved by both mill operators and the St. Regis sales division, will act as a buffer during periods when orders are normally off (the month of December, for instance) and permit full time operation of the machines at peak quality.

"Anybody will tell you," commented one machine operator, "that setting up a paper machine to produce paper for just one day, then going back to another grade, costs you. It costs you in time and costs you in quality. If you can run a grade a week at a time you have your quality, you have smoother operation, your people are happier. It's just a good deal."

Economics play an important role here, too. Mill officials will tell you that the top layer of a paper roll which must be removed after outside storage in all kinds of weather, amounts to about a 6% loss. St. Regis has not only smoothed up its operation and improved shipments to customers, it is saving money at the same time.



FROM DOWN BELOW . . . the man in operator's box is operating the Mansaver grab, shown here lifting a roll.

Some of Men Who Make "Jax" Mill Tick

PROUD OF SEMINOLE CHIEF nameplate and the machine that bears this name are (l to r) John A. McDermott, general manager pulp and paper mfg.; Justin H. McCarthy, vice pres. in charge of engineering—pulp and paper; Stephen P. Kaptain, resident mgr., Jacksonville.

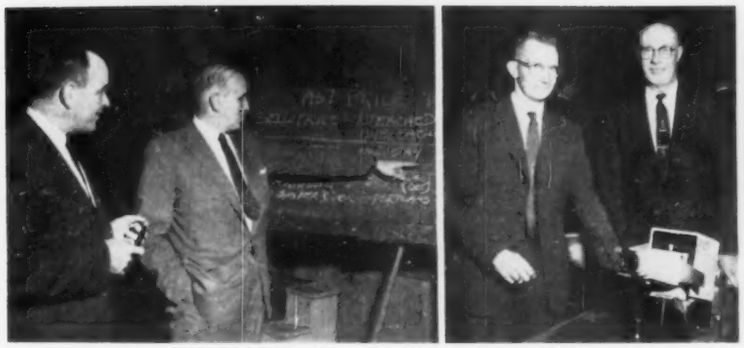
DOWN NEW MACHINE'S LADDER (l to r): Floyd A. McLeod, paper mill supt., Jacksonville; John M. Victor, formerly gen. supt., now manufacturing representative to kraft paper sales; J. Arnold Harrison, manufacturing supt., Jacksonville; Lloyd E. Goodwin, pulp mill supt., Jacksonville.

Lawrence C. Crowder, chief engineer—pulp and paper; Eric S. Rice, plant chemist, Jacksonville.

David F. Roberts, plant engineer, Jacksonville; Lawrence A. Bradbury, personnel manager, Jacksonville.

H. Ross Emery, staff power engineer; Raiford Clements, power supt., Jacksonville.

SEE PULPWOOD SECTION . . . for story of how wood is produced and processed for new additions to St. Regis Jacksonville mill.



Darmstadt ..... Owens ..... Westfall ..... Stewart

At left, William J. Darmstadt, Babcock & Wilcox Co., and Vincent P. Owens, Combustion Engineering, Inc., review cost-increase data. At right, Fred Westfall, Scott Paper instrument supervisor, and T. W. Stewart, supt. of power, Weyerhaeuser Pulp Div., line up visual aids for their technical papers.

Combustion Authorities Speak:

On Safety Controls for Boilers . . . Trends in Kraft and Semichemical Mills

What safety controls should be installed when converting boilers from oil to natural gas? Fred Westfall, instrument supervisor, reviewed the changeover of four boilers at Scott Paper Co.'s Everett plant, at recent engineering meeting of Pacific Section TAPPI held in Everett. Each of these can be switched back to oil within a few minutes.

An individual pressure control operates on each boiler gas line for combustion control. Two boilers use reset type pressure pilots and conventional air-motor operated control valves for gas pressure controls; the other two have pilot-operated pressure-balanced valves. Mr. Westfall reports that both types "appear to be satisfactory for our use."

Controls were developed by the plant engineering department to protect personnel, equipment, and to satisfy insurance requirements for safety. To safeguard against combustion failure a shut-off valve closes when air flow across forced and induced fans falls below the amount required for minimum load. Guarding against electrical control system power loss, each boiler is electrically supplied by its own generator driven either by the forced or induced draft fan steam turbine. The entire boiler house is independent of mill voltage.

A normally-closed type automatic shut-off valve provides against loss of instrument air. Another safeguard provides protection in low-pressure lines to burners downstream of the flow control valve.

Flame failure protection: In case of the plant's two 4-burner C.E. boilers, loss of flame on a bottom burner closes an electric holding valve for both burners, but the top two continue to operate. The opposite situation could also occur. But in case of top and bottom flame failure, the main shut-off valve would close.

As for the B&W and Riley boilers, each burner is equipped with an individual manual-opening electric-holding valve. So it would be necessary for all of these to close to shut down the entire boiler.

Only when the main valve closes does the safety shut-off valve in the pilot gas line close and simultaneously the vent valve or valves open relieving the pressure in piping to the boiler. Following any closing of the main valve a purge timer starts and must run five minutes with sufficient air flow through the boiler before it can be re-opened.

Trends in Kraft . . .

Vincent P. Owens, pulp-paper industry sales mgr. for Combustion Engineering Inc., pointed out the following trend characteristics of kraft recovery units:

1. Based on 1944 cost index, bleached kraft pulp and steel used in steam power equipment crossed each other's price level early in 1949. Since then the steel cost has increased 65% compared to 11.2% increase in pulp price. He said "the comparatively lower increase in pulp prices is a tribute to the technological resourcefulness of the industry in the mass production of pulp."

2. Design of recovery units has gone to higher capacity, higher steam pressures and temperatures, and wider application of labor saving equipment —mainly mechanical soot cleaning, controls and instruments.

3. Advances have been made in heat recovery equipment. "Although the average capacity of recovery units purchased in the past two years is as high as 330 tons," Mr. Owen states, "some mills have purchased smaller recovery units with the intention to reduce their fuel costs by higher steam production from black liquor and to reduce their labor costs with modern equipment incorporating modern accessories."

Small Furnaces Now Important . . .

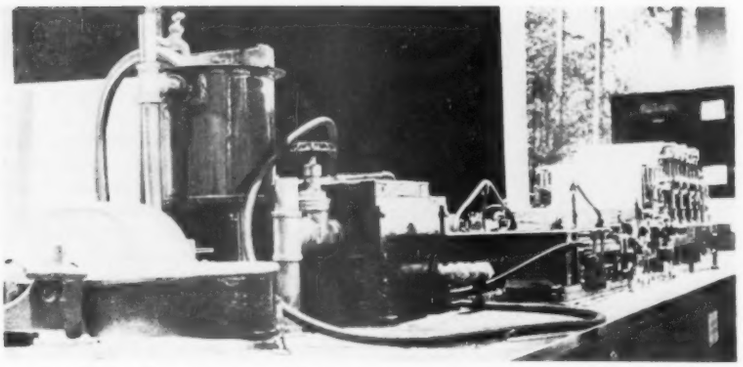
William J. Darmstadt, process equipment div. of Babcock & Wilcox Co., cited "smelters" as an important development specifically applicable to non-integrated NSSC mills. These small furnaces, he points out, "have the advantage of reduced capital expenditure at the expense of some increase in plant operating cost." The smelter was described as "an assembly of a proportionately smaller modern kraft furnace with an efficient heat scavenger in the venturi-evaporator-scrubber."

This type furnace may be applied to small kraft or NSSC recovery systems from capacities below 66 tons per day (on equivalent kraft basis). At present two smelter units designed for 30 and 40-ton per day capacity are in service, according to Mr. Darmstadt.

He said the new Mead NSSC recovery system, having operated for several months, "has been proved sound on a commercial basis. Better than 90% of the daily cooking chemical requirements have been supplied by the recovery process during normal operating periods.

". . . With a modern NSSC mill and Mead type recovery system, we are thinking that an overall plant recovery efficiency of 80 to 90% of the sodium and 75 to 85% of the sulfur fed to the digesters may be obtained," he said.

T. W. Stewart, supt. of power, pulp div. Weyerhaeuser Timber Co., Longview, reported that three power boilers there have recently been converted from oil to natural gas fuel. These are equipped to burn oil on alternate or stand-by basis.



MINIATURE PAPER MACHINE. Of Rice-Barton manufacture it can produce 8-in. wide sheet of paper with a top speed of 5 fpm, in 352 hours could reel out a sheet from Philadelphia to New York City. From open type headbox to reel it sweeps 17-ft.

Exhibits Create Awareness of Industry

MACHINE TENDER—Harry Quillan, (right), formerly with W. C. Hamilton & Sons, a veteran of more than 50 years of papermaking. This is first time he's met Ralph Kumler, executive secretary of the Waste Paper Utilization Council, since they were both working at Jessup & Moore Paper Co., Baltimore, Md. (now Container Corp. of America), about 32 years ago.

● Some 300,000 visitors a year who shuffle along the marble floors of the Franklin Institute in Philadelphia, Pa., will have a better idea of their neighbors in the paper industry.

It's all the result of some 18 companies, members of the Middle Atlantic Community Relations Committee of the American Paper & Pulp Assn. Under joint sponsorship a permanent paper industry exhibit has been set up with a miniature (8-in. trim) paper machine as focal point.

Some 200 industry executives recently thronged this exhibit on opening day for (paper) ribbon cutting and starting-up operations. It is of Rice-Barton design, and manufacture.

Roy Goodlander, chairman of the CR Committee and coordinator of industrial relations for New York and Pennsylvania Co., Inc., dedicated the exhibit and said its purpose is to stress the size, stability and growth potential of the industry. The exhibit was planned to make the public aware of the industry's career opportunities and its importance to the many mill towns.

Marks 150 Years of Pioneering New Papers

Just 150 years ago last Jan. 26, Gardon Caswell founded the "Pioneer Mill" in Watertown, N.Y., third oldest plant in the country in continuous operation on the same site. Now known as Knowlton Bros. Inc., the company celebrated the anniversary with company and community events, the only "outsider" being David L. Luke, president of West Virginia Pulp & Paper Co. and retiring president of APPA, who addressed a dinner group.

In 1824 George W. Knowlton, Sr., became partner with Clarke Rice to bring the Knowlton name to the plant. Twenty-seven years later his sons, George W. Knowlton, Jr., and John C. Knowlton formed Knowlton Brothers.

There is good evidence that the firm's first continuous paper machine, installed in 1832, was one of the earliest Fourdriniers in the U. S. What is now No. 1 Fourdrinier machine with a trim of 60 in. was built in 1869. Six original dryers, made by Rice, Barton & Fales, are still in operation.

In 1873, six years after the first groundwood was made in the U.S., Knowlton Bros. put in two grinders, making pulp from softwood. A duplex machine—a combination cylinder and Fourdrinier, permitting formation of a single sheet with each side a different color—was installed in 1907. This 80-in. trim machine is one of only a few in the country. It pioneered photographic papers for Eastman Kodak and Ansco. Mimeo papers were believed run on this machine for the first time in the U. S. The first U.S.-made kraft paper came off the Knowlton Bros. Fourdrinier just after the company celebrated its centennial in 1908. It was made from Swedish kraft pulp imported by Charles F. Hubbs & Co., New York.

Can Tell When There is Atomic Blast . . . .

Knowlton Bros. continued its pioneering tradition in 1952 by beginning routine monitoring of its process water for atomic radiation. By daily testing of filtered process water from the Black River, it can determine from the fallout whether there has been an atomic blast anywhere in the world. (It can't tell where the blast occurs).

In 1953, Knowlton Bros. became the first mill in the U. S. to make a commercial run of all-bagasse bleached paper, using pulp from Valentine's mill at Lockport, La. A wide variety of end-use products are made from woodpulp, esparto pulp from France, palm leaf and bagasse pulp, as well as leather, kapok, glass, asbestos, ceramics, cork, manila rope and synthetic fibers such as nylon, dacron and dynel.

A new research laboratory with pilot Fourdrinier machine and stock preparation equipment provides for future development of new products.

First Cellulose Conference Planned at Syracuse

The newly established Cellulose Research Institute at State University College of Forestry, Syracuse University, announces its First Cellulose Conference, an all-day session on April 24. Edwin C. Jahn is general chairman of the conference and associate dean of the College of Forestry.

Speakers include Dr. P. H. Hermans, Dutch Institute for Cellulose Research; Dr. G. N. Richards, British Rayon Assn. Laboratories; Dr. Herman Mark of Brooklyn Polytech; Dr. J. J. Hermans, newly appointed director of the Cellulose Research Institute at Syracuse; Bengt G. Ranby of American Viscose, and D. S. Jackson and A. Sandig of Cortaulds' of Canada.

The "Brewtonian" Starts Up in Alabama

The new 300-ton capacity, $30,000,000 Container Corp. of America bleached kraft pulp and board mill at Brewton, Ala., has started up, announces Donn Jennings, general mgr. Most of the output will go to Container Corp. plants across the country. But bleached pulp and quality paperboard also will be sold.

Initially, the mill on the Conecuh River will use about 4,000 cords of wood a week, operating seven days. The "Brewtonian," a 216 in. (196 in. trim) Rice Barton Fourdrinier has a Beloit pressure headbox, 70 paper dryers, totally enclosed Ross Engineering aluminum hood and six coating dryers between calender stacks. This is followed by Lamb-Grays Harbor wrapper, cutter and layboy and sheet and roll handling. Pulp handling is a similar Lamb automatic system. A 1,800 hp General Electric turbine is hooked to a differential drive for the machine.

Two Carthage barkers, Murray chippers, Link-Belt conveying, three Stebbins chip silos, five Chicago Bridge digesters (four carbon steel and one Lukens steel), 3-stage Impco washing, Cowan screens, Babcock & Wilcox 175,000 pph recovery plant, Research-Cottrell precipitator, Dorr-Oliver causticizing, Allis-Chalmers 175 ft. long lime kiln, Combustion Engineering bark-burning power boiler, 12,500 kw G.E. turbine, Ingersoll Rand fan pumps, Clark-Vicario Deculator, Bauer Cleaners, Ross-Midwest Fulton drainage, Emerson Claflin refiners, and Miami jordans are other major equipment units. Bleaching is five stages—chlorination, caustic extraction, chlorine dioxide, caustic again and a second chlorine dioxide stage. Olin Mathieson's generator and ClO_2 system is used.

Six lakes provide retention time before mill effluent enters the river six miles from the mill, in a waste system developed with official state cooperation. Gas and oil supplement other fuels, gas being piped 40 miles, with excess available to the city of Brewton. Ebasco Services, Inc., engineers worked closely with C.C. of A. engineers.

Bolton Award Contest Ends March 31

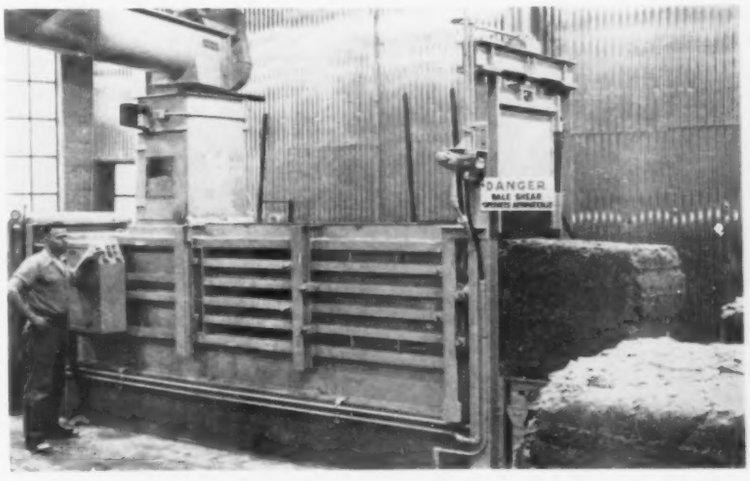
The American Pulp and Paper Mill Supts. Assn. and John W. Bolton & Sons Inc. announce the 1958 essay subject as "How I can Help Relations between My Company and My Community."

As in previous Bolton Awards 10 national cash prizes consisting of $1000, $750, and $500 and seven prizes of $200 are awarded. Winning papers are selected on the basis of the ideas contained, their value, interest and originality rather than writing skill. The contest period ends midnight, Mar. 31. Essays should be approximately 1500 words or less, typed with double spacing on one side of standard 8½ x 11 inch plain paper. First page only should have name, position or duties, mill, and mill and home addresses. Mail entries to the Secy.-Treas., American Pulp and Paper Mill Supts. Assn., 327 So. LaSalle Street, Chicago 4, Ill.

E. D. Jones Buys Zenith Div. Of Jackson & Church Co.

E. D. Jones & Sons Co. purchased the North American assets of Zenith pulp press div. of Jackson & Church Co. of Saginaw, Mich., which includes the manufacture of pulp presses and roto-pulpers. This operation is being transferred to the Jones plants in Pittsfield, Mass. E. D. Jones has also been granted sales rights in South America and other areas. First Zenith products out of Pittsfield are scheduled for March.

Thurston L. Yocum will manage the new division.



To Economically Ship Pulp By Rail

Crown Zellerbach has installed a screw press in its Camas, Wash., mill to prepare pulp for shipping to other mills. Pulp from beaters feeds directly into a Jackson & Church 125-ton per day pressing unit (left) for delivery to baler (right) at 50% consistency. Buckshot-size pellets emerging from press feed through a "fluffer" to the East Chicago Machine Tool Co. baler forming the "dried" pulp into 26x32x48-in. bales weighing 1,300 lbs.

Caustic treated sulfite, cottonwood kraft and 80 G.E. kraft pulps will be thusly processed. Lift trucks move the packaged pulp to adjacent rail siding for shipment to California, Louisiana and Northwest CZ mills.

Two Sweco vibrating screens processing water squeezed from the wet pulp prevent fiber loss and forestop pollution factors. The water is re-used after screening.

This new press, operating under direction of Groundwood Mill Supt. J. M. Burch, is a larger version of the 25-ton capacity J&C press installed in the groundwood mill to dewater pulp for truck transport to Crown Z St. Helens mill. E. D. Jones & Sons, Pittsfield, Mass., are manufacturers of these screw presses.

New Safety Record Set on West Coast

A new low in injury frequency rate was achieved by the 45 Pacific Coast mills in 1957, reducing the rate average to 5.49. This compares to 6.48, the previous low, for 1956. The frequency rate dropped 35% in Oregon mills, 23% in California mills. Washington mills, still lowest of the three states, increased 1%. Summary for two-year period:

State	No. of Mills	CALENDAR YEAR 1956 Man Hours Exposure	Disabling Injuries	Frequency Rates	CALENDAR YEAR 1957 Man-Hours Exposure	Disabling Injuries	Frequency Rates	1957 Percentage Change
Washington	(22)	27,925,724	129	4.62	27,254,368	127	4.66	+ 1%
Oregon	(8)	8,101,989	72	8.89	7,743,029	45	5.81	—35%
California	(15)	11,196,210	105	9.38	11,842,790	85	7.18	—23%
TOTAL ALL MILLS	(45)	47,223,923	306	6.48	46,840,187	257	5.49	—15%

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d-i LESTOIL
makes fibres free-flowing —
keeps wires, felts and systems clean —
felts stay soft and porous —
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For complete technical information and generous free sample write to:

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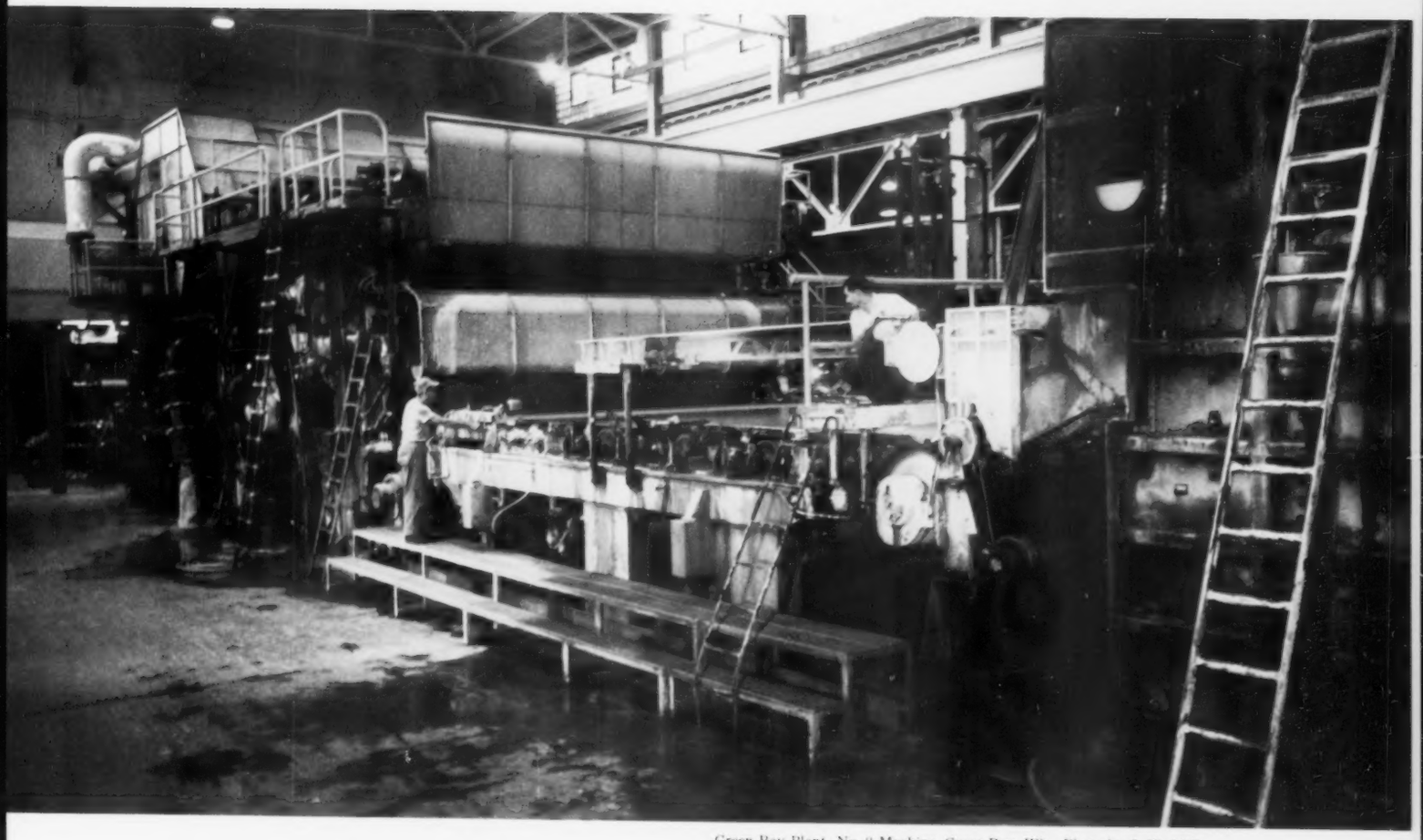
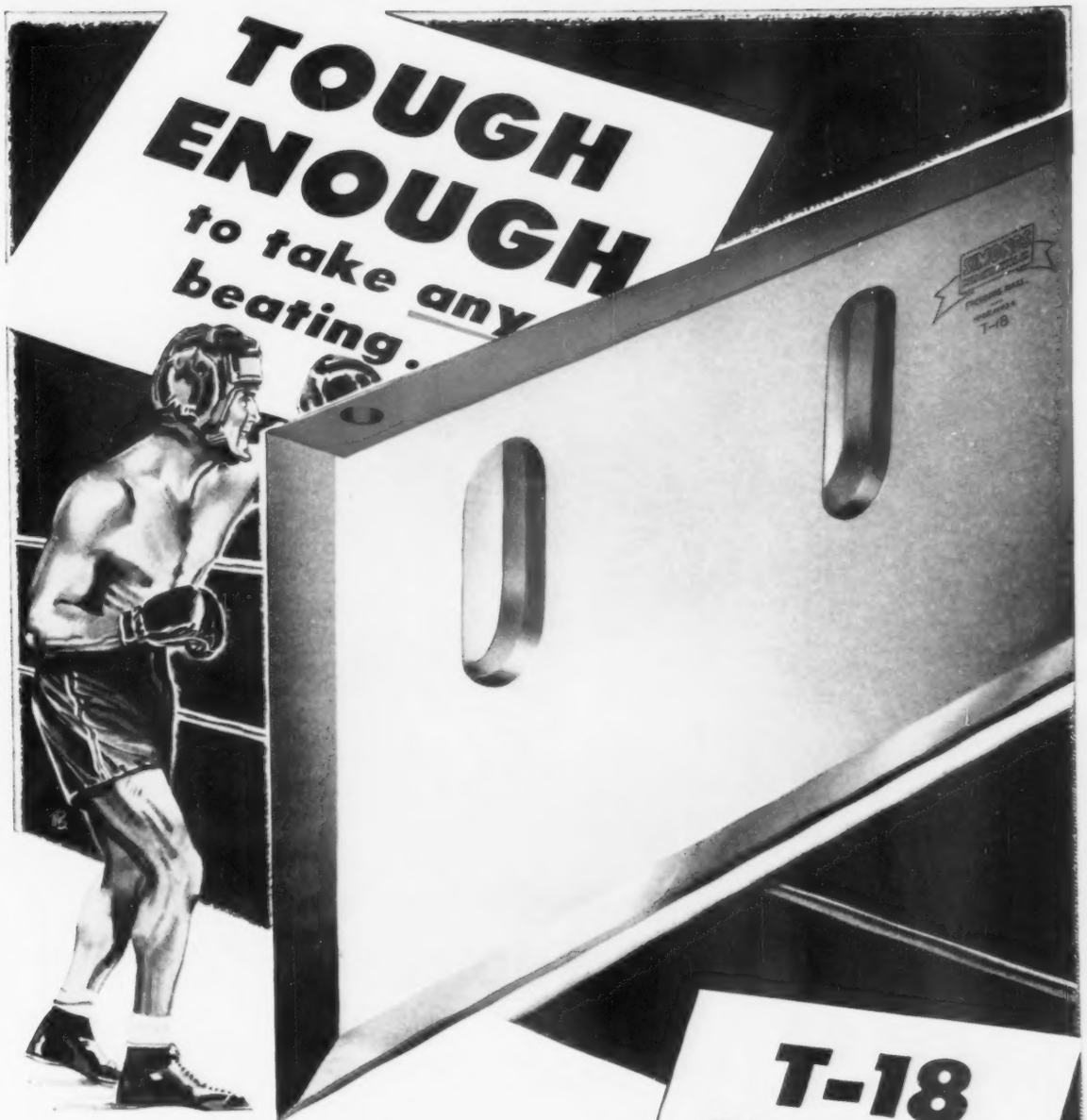


Green Bay Plant, No. 9 Machine, Green Bay, Wis. Photo by J. W. Miller

Marathon—a division of American Can Company

This 192" Yankee tissue machine is the fastest and most modern in the growing and diversified Marathon organization. The first Beloit machine was installed in this mill in 1904. Today, this modern plant has nine Beloit machines in production.—"*Your partner in papermaking,*" *Beloit Iron Works.*



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Chips aren't bruised and "beat-up" . . . they're not mashed and of uneven length . . . when they come out from under a Simonds T-18 Knife. But they *are* uniform in size, and that means they "cook" more quickly and evenly . . . make better-grade pulp.

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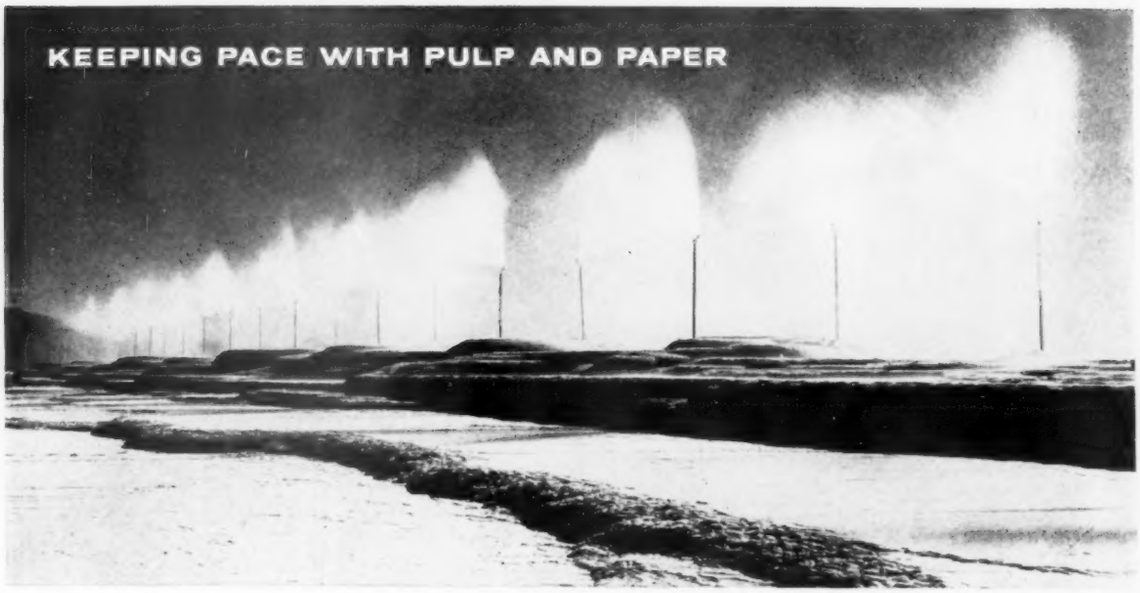

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You can count on TRONA to supply your expanded kraft production needs for high purity Sodium Sulphate and Sodium Chlorate. TRONA is basic in both. Salt Cake, from the rich natural brines of Searles Lake, is keeping ahead of production curves wherever high quality kraft paper is produced.

If your interest lies in the SOLVAY high-stage chlorine dioxide pulp bleaching process, you can depend on TRONA* Sodium Chlorate from our large electrochemical facilities at Henderson, Nevada.

Expanded Production of SODIUM CHLORATE

For '58—A New Sodium Chlorate Plant at Aberdeen, Mississippi.

Looking to the future, AP&CC is building a new $5 million Sodium Chlorate plant, with initial production of 15,000 tons per year, at Aberdeen, Mississippi, to serve the expanding Southern pulp industry. When completed in mid-1958, this plant will mark the emergence of American Potash & Chemical Corporation as the largest producer of $NaClO_3$ in the Western Hemisphere.

Electrolytic cells at Henderson

TRONA

American Potash & Chemical Corporation

3030 West Sixth Street, Los Angeles 54, California

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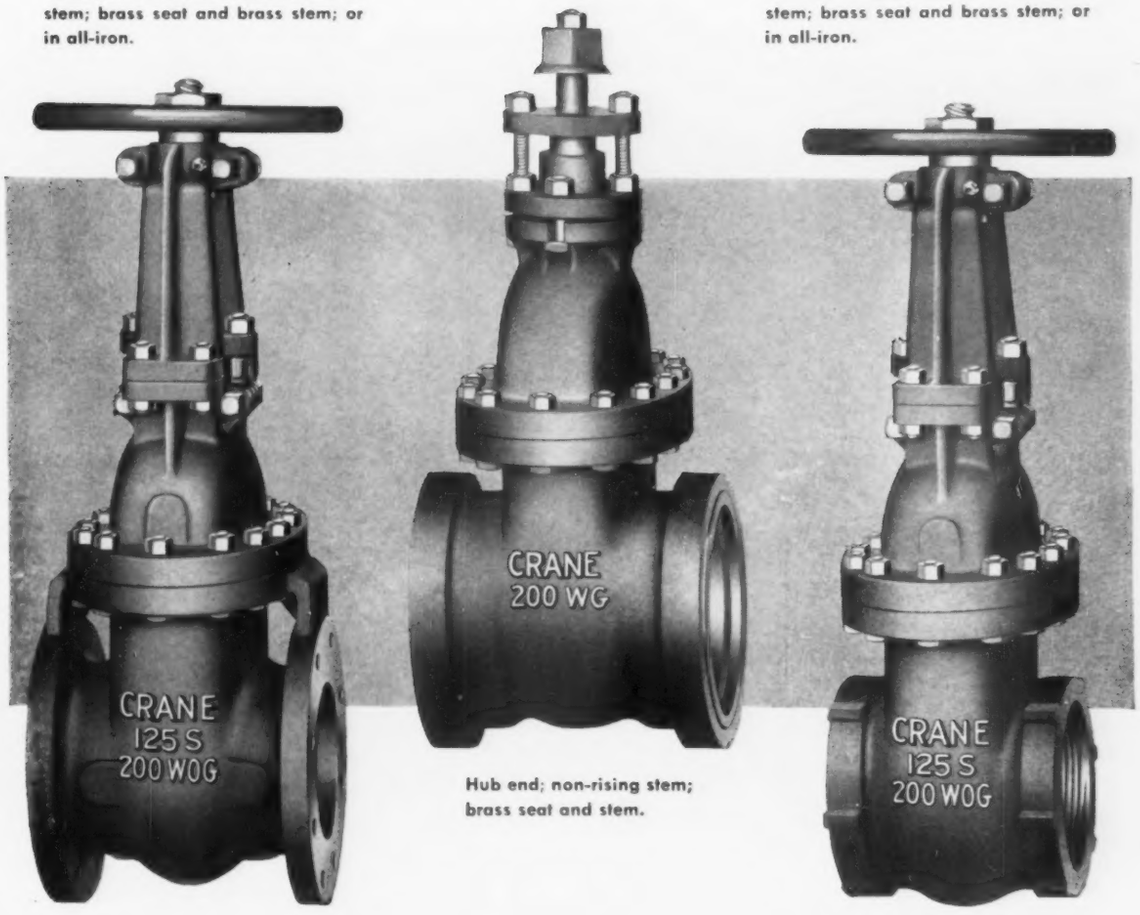
Flanged end; outside screw and yoke. Available with brass seat and steel stem; brass seat and brass stem; or in all-iron.

Screwed end; outside screw and yoke. Available with brass seat and steel stem; brass seat and brass stem; or in all-iron.



Hub end; non-rising stem; brass seat and stem.

Crane Iron Body Gates–Versatile Valves for Pulp and Paper Industry Services

Look to Crane for better performing 125-pound iron body wedge gate valves. Improved design gives them greater strength and important operational advantages. As a result, these valves offer dependable performance on a wide variety of services . . . easy maintenance . . . long life.

Among the advantages of Crane iron body wedge gates are:

- *Oval body and bonnet*, with extra metal where needed most.
- *No bonnet joint leakage*—More bonnet bolts on closer centers insure uniform bolt load distribution on bonnet joint and gasket.
- *Long disc guides* seat discs properly . . . minimize drag on seating surfaces . . . prolong valve life.
- *Shoulder-type seat rings* prevent rings from loosening in service.
- *Two-piece ball-type gland* prevents binding on stem even when gland bolt nuts are pulled up unevenly.
- *Exceptionally deep stuffing box* can easily be repacked under pressure when valves are wide open.
- *Available in 19 sizes*—2 inches to 48 inches—all-iron or brass trimmed. In addition, Crane makes companion valves in globe, angle, check, quick-opening and Underwriters' patterns.

For complete descriptions of Crane iron body gate valves, consult your Crane Representative, or write to Crane Co. at the address shown below.

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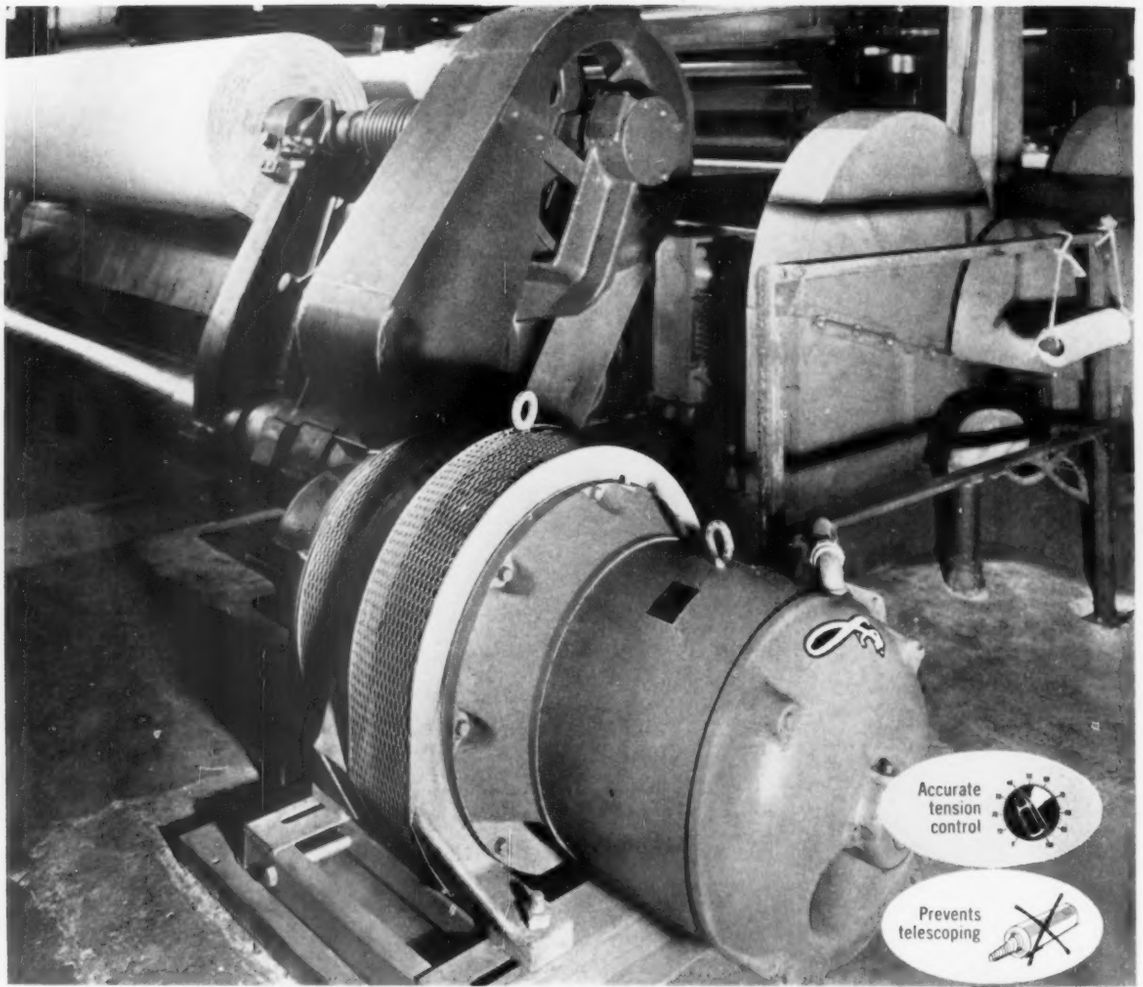

Where tension pays off

Louis Allis adjustable speed drives provide soft start . . . controlled acceleration . . . smooth pick-up after roll changes

Paper-winding operations (above) rely on tension . . . accurately applied. That's why you'll find Louis Allis Ajusto-Spede® drives on those center-winding operations where precise speed control saves time, paper, and handling . . . eliminates operator fatigue and its resulting inefficiencies and costly waste.

For operations requiring up to 75 hp, Ajusto-Spede® delivers the exact speed you want, when you want it. This accurate Louis Allis adjustable-speed control permits smooth speed reduction for easy "on-the-fly" roll changes . . . glides into proper tension quickly and safely. And you get the same soft-start, superior performance whether you're handling delicate tissue or heavy board stock, parchment or paper.

Here are just a few of the features of this versatile adjustable-speed drive: linear speeds from 100 to 2,000 fpm — roll build-up ratios up to 15:1 — controlled tension from ½ to 10 lbs. per inch of width — inertia compensation for maximum acceleration rates — adjustable stalled tension for smooth starts. This precise tension control means greater high-speed production . . . less downtime on windup drives in all phases of paper manufacture. Contact your nearby Louis Allis District Office or write The Louis Allis Co., 444 East Stewart Street, Milwaukee 1, Wisconsin. Ask for Bulletin No. 611E.

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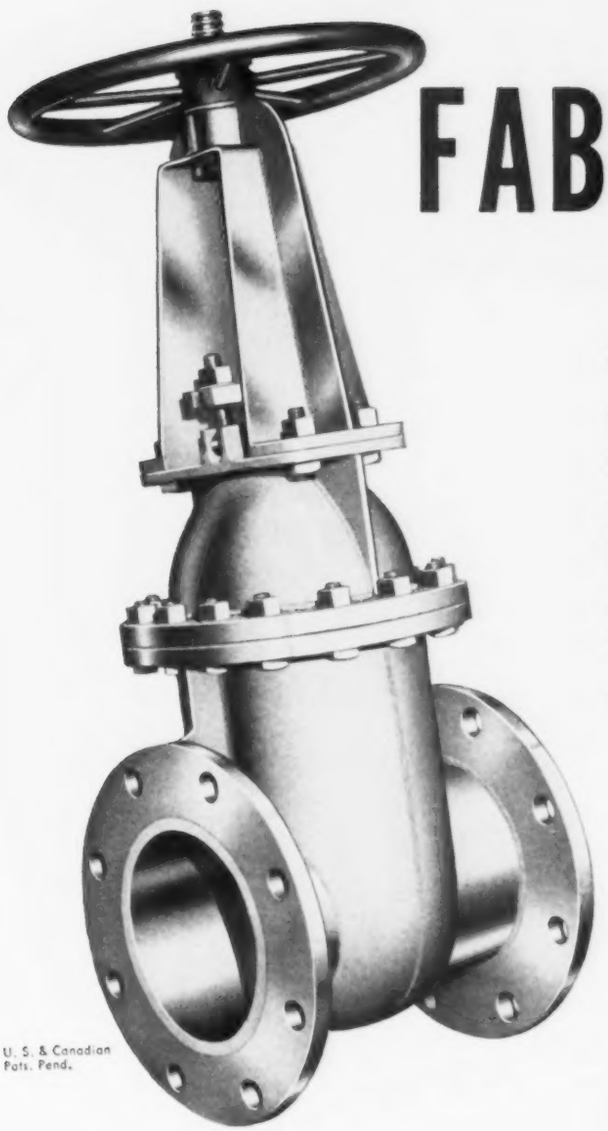

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Complete stress-relieving facilities are maintained at each CB&I plant. And CB&I crews are fully equipped and experienced for field stress-relieving. Partial or full X-ray and magnetic particle examination of structures in shop or field is available to meet all code or customer requirements.

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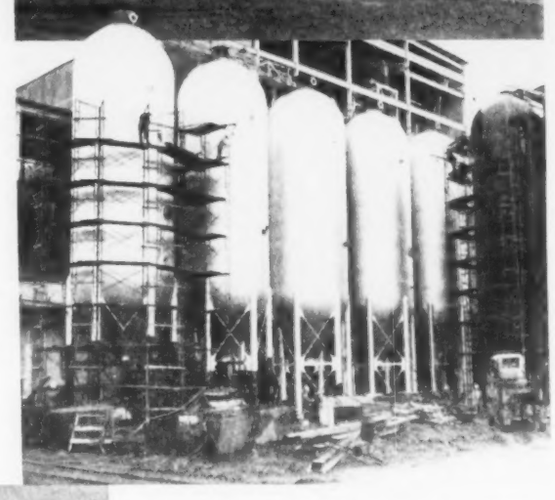
PP-25



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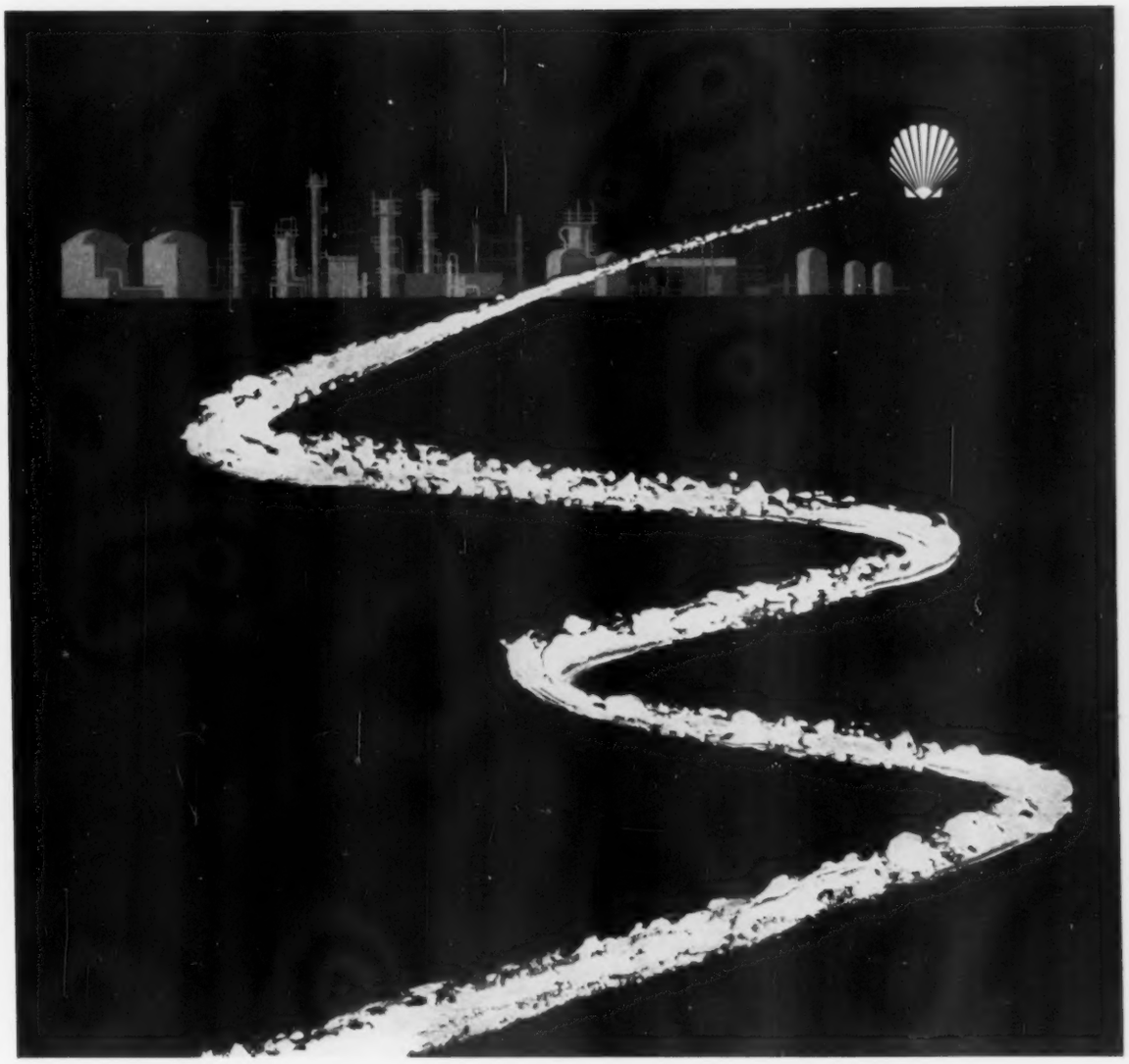
Top left: 40-ft. long digester designed for working pressure of 150 lbs. per sq. in. leaves our Birmingham plant where it was X-rayed and stress-relieved.

Middle: Digester leaves CB&I stress-relieving furnace at our Birmingham plant. Furnace can handle vessels up to 13-ft. diam. by 79-ft. long in one heat.

Below: 60-ft. high digesters erected, stress-relieved and seam welds X-rayed in the field by CB&I at Weyerhauser's 400-ton sulphite pulp mill at Cosmopolis, Washington.



New H_2O_2 Shell Chemical Plant now on stream At Norco, Louisiana

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To help you with your H_2O_2 application and handling problems, Shell Chemical maintains a very active research program and a field service to render expert technical assistance to processors. As a major consumer of hydrogen peroxide, Shell has acquired extensive experience in the special problems of H_2O_2 chemistry.

Your Shell Chemical representative will be glad to consult with you on your own H_2O_2 requirements.

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And excellent film-forming properties also improve strength as well as surface characteristics. Increased sizing efficiency permits reduction of total added weight of size or in quality of base stock. *Either way, Ethylex Gums save you money.*

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From hydraulically operated breast roll assembly to cantilevered suction couch, this 130" x 75' Manchester Roll Out Fourdrinier was designed to *consistently* produce top quality papers at low cost.

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See Manchester before you plan your next new paper machine or rebuild. We'll offer you some interesting money-making and money-saving ideas.

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St. Regis Paper Co. installed three more ACCELATOR® treating units, duplicates of a unit installed in 1951, because—in addition to providing treated water of the desired characteristics — the "ACCELATOR" unit produces a calcium carbonate sludge suitable for reburning to provide quicklime for other plant requirements.

To be suitable for reburning, the calcium carbonate sludge should be substantially free from magnesium and silica to prevent the "build-up" of these constituents in other plant processes in which the calcined sludge is used.

The "ACCELATOR" treating unit is particularly well adapted to producing high purity calcium carbonate sludge because it utilizes mechanically maintained slurry recirculation, regardless of through-put. This affords rapid and complete dispersal of the treating chemical into the water slurry mixture, thus avoiding localized over-treatment which precipitates the unwanted magnesium hydroxide with consequent silica absorption.

For producing calcium carbonate "fit to burn" use "ACCELATOR" treating plants as many other Kraft mills have done.

Write for Bulletin 1825-D.

P. S. The "ACCELATOR" unit is also suitable for clarification and color removal problems.

Inquiries are also invited on all other water and waste treating problems including coagulation, precipitation, sedimentation, filtration, flotation, ion exchange and biological processes.

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A last-stage H_2O_2 treatment improves brightness permanence!

Want to be sure your pulp retains the same brightness level on delivery as it had at the layboy? Then use Becco's Dryer Steep Bleaching Process, patented, but freely available to the industry.

Many pulp producers have found Dryer Steep Bleaching an adaptable, highly efficient method for super-bleaching chemical pulp to high brightness with minimum capital investment. Applied by means of spray pipes across the pulp sheet ahead of the dryers, hydrogen peroxide solutions increase brightness permanence, giving higher brightness both at the layboy and after many weeks' storage and/or shipment.

In integrated operations, a Becco Hydrogen Peroxide treatment can, of course, be given to the pulp in a final bleach plant stage to improve brightness and its retention. When pulp is sheeted, however, Becco's Dryer Steep Bleaching Process is preferred for achieving lasting brightness, and may often result in a reduction of the amount of other chemicals used in the bleach plant.

Becco Dryer Steep Bleaching is applicable primarily to bleached or partly bleached chemical pulps. On all pulps Becco has a vast amount of technical knowledge compiled from years of experimentation and field work. A Becco trained technical representative will be glad to help you solve any bleaching problem you may have. Write us, requesting his help. At the same time, ask for your free copy of the following technical bulletins:

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64. Development Studies on Last-Stage H_2O_2 Bleaching of Alkaline Pulps
91. Peroxide Bleaching of Chemi-Mechanical Hardwood Pulps
92. Peroxide Bleaching of Chemical Pulps

BECCO CHEMICAL DIVISION
Food Machinery and Chemical Corporation
Station B, Buffalo 7, New York
BUFFALO • BOSTON • CHARLOTTE, N.C. • CHICAGO
NEW YORK • PHILADELPHIA • VANCOUVER, WASH.

Progress in Peroxygens

BECCO

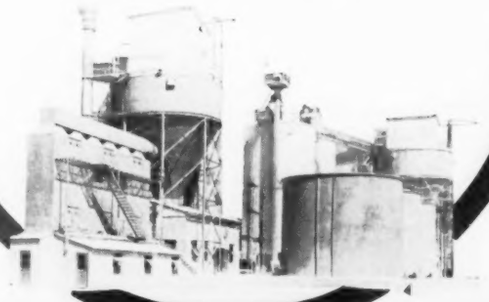
fmc
FOOD MACHINERY AND CHEMICAL CORPORATION

FMC CHEMICALS INCLUDE: **BECCO** Peroxygen Chemicals • **WESTVACO** Phosphates, Barium and Magnesium Chemicals • **WESTVACO** Alkalis, Chlorinated Chemicals and Carbon Bisulfide • **NIAGARA** Insecticides, Fungicides and Industrial Sulphur • **OHIO-APEX** Plasticizers and Chemicals • **FAIRFIELD** Pesticide Compounds and Organic Chemicals

Thiele

WATER-WASHED, SPRAY-DRIED

COATING CLAYS



Thiele Kaolin Company

P. O. BOX 270 · SANDERSVILLE, GA.

Meet the most rigid requirements for:

EXCELLENT COLOR—HIGH BRIGHTNESS—UNIFORM

LOW VISCOSITY—CONTROLLED MOISTURE CONTENT—

UNIFORM LOW SOLUBLE SALT CONTENT

Unlimited Reserves!

Write for full information and sample of Thiele Coating or Filler Clay for your particular use.

Hammermill's No. 6 paper machine is now in full operation, after a complete modernization of the wet end which includes:

New Valley Inlet and Headbox
New Valley Fourdrinier
New Valley Press Section
New Valley Paper Markers
New Valley Rope Carrier System
New Valley Dryers (four)

This rebuilt machine has already proved itself a "paper maker's dream turning out top quality Hammermill papers." Improvements include better weight control, higher speed capacity, faster wire changes, greater drying capacity, and many other advantages.

This is another link in Valley's long chain of experience in building higher profit potential into America's paper machines. May we put this experience to work for you? Write –

VALLEY IRON WORKS COMPANY APPLETON, WISCONSIN

Canadian Representatives:
Pulp & Paper Mill Accessories Ltd., P.O. Box 903, Station "O" Montreal 9, Quebec

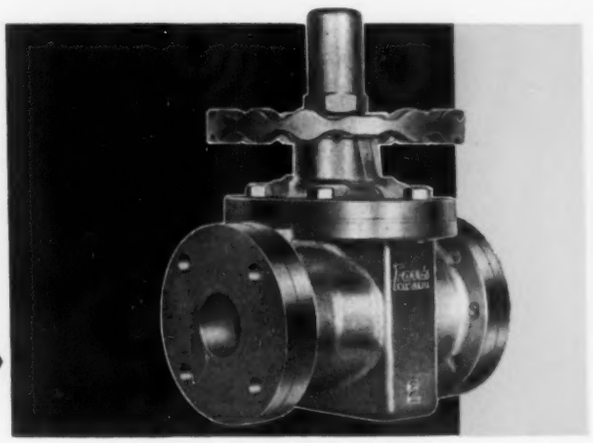
Farris

FLEX SUPERSEAL® VALVE

If it goes through a pipe – it will go through a Flex Valve

The perfect valve for industry's toughest service! The Farris SUPERSEAL combines all the outstanding advantages of the standard 26-year job-proven flexible valve plus the added safety and performance of a complete metal enclosure...sealing in all movable parts and the flexible body itself. SUPERSEAL valves are ideal for full-pipe-capacity service under higher pressures, carrying a variety of materials from corrosive acids and chemicals to wet cement and wood chips!

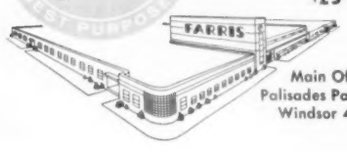
SUPER SAFETY! Pressure tight housing fully encloses the flexible body, preventing escape of corrosive or toxic fluids when excessive wear takes place on the flexible body; patented flare-type dual seal insures complete protection for all working parts; cast housings available in alloys to meet your needs...SUPER ECONOMY! Self-supporting for money-saving installation and maintenance; inner valve bodies outwear metal 11 to 1; low cost valve bodies easily replaceable...SUPER SERVICE! Minimum hand-wheel effort; novel, self-aligning chain drive; minimum face-to-face dimensions; wide choice of accessories; choice of models for all requirements.



Series 5200
Manually Operated SuperSeal operates with minimum effort

Farris FLEXIBLE VALVE CORP.

525 Commercial Avenue, Palisades Park, N. J. In Texas: 5405 Clinton Drive, Houston 20



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FARRIS HYDROTORQUE CORPORATION
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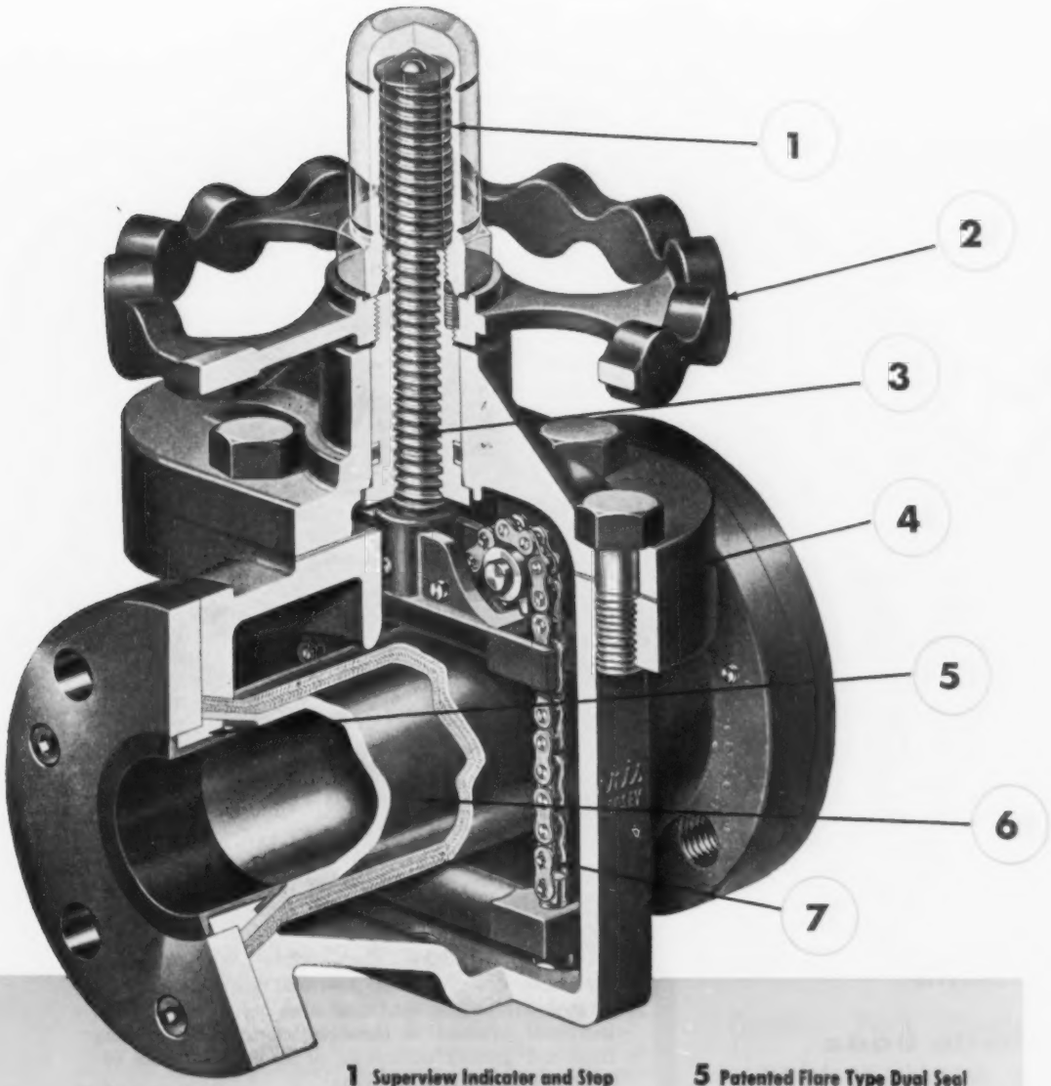


1 Superview Indicator and Stop

2 Non-Rising Hand Wheel—Minimum Effort

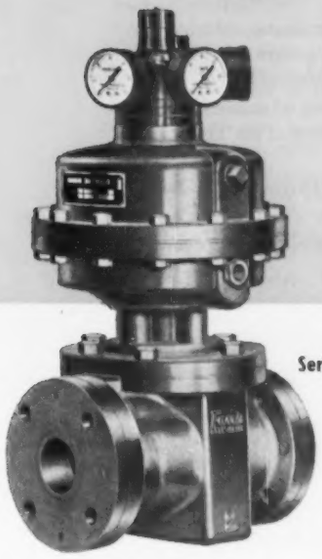
3 Durable Acme Thread—Stainless Stem

4 Completely Enclosed Metal Housing —Self Supporting

5 Patented Flare Type Dual Seal

6 Longer Life—Low Cost Body of Standard Fabric or High Strength Nylon

7 Self-Aligning Chain Drive



Series 5300 and 5400

Diaphragm Motor-Operated Superseal with valve positioner for automatic remote operation.

FARRIS FLEXIBLE VALVE CORP.
525 Commercial Avenue, Palisades Park, N. J.

Gentlemen: Tell me more about the Farris SUPERSEAL Flex Valve.

☐ Mail Catalog Information. ☐ Have your representative call on me.

NAME_____ TITLE_____

COMPANY_____

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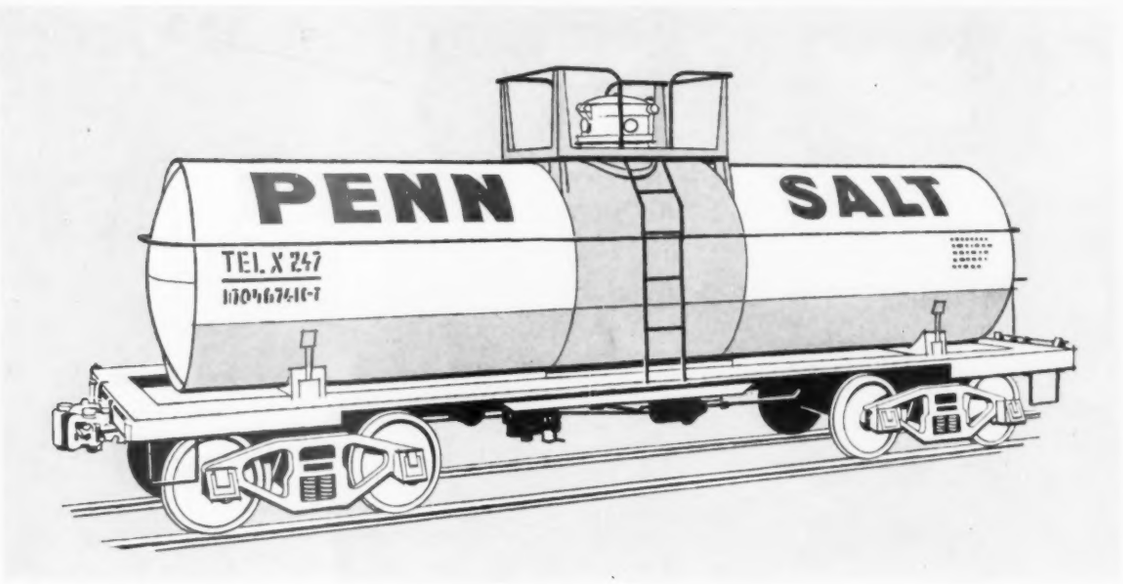
CITY_____ STATE_____

CLIP THIS COUPON TO YOUR LETTERHEAD AND MAIL TODAY

the Big 4

Pennsalt Basic Chemicals for Refined Pulp



1. **Chlorine**
2. **Caustic Soda**
3. **Sodium Chlorate**
4. **Anhydrous Ammonia**

Long a supplier of Chlorine, Caustic Soda and Sodium Chlorate to the pulp and paper industry, PENNSALT also offers Anhydrous Ammonia.

The ammonia base pulping process, although not a new development for the manufacturing of sulphite pulp, has many advantages: ease of waste disposal, increased production through reduction of cooking time and greater utilization of all woods. These advantages tend to reduce costs.

PENNSALT sodium chlorate produces chlorine dioxide which helps bleach wood pulps whiter and brighter with less deterioration of strength.

In addition to supplying chemicals of uniform quality, PENNSALT offers the assistance of its Technical Service Department.

Strategically located plants in Tacoma and Portland offer fast delivery and service.

Please write or telephone for detailed information on PENNSALT'S Big 4.

PENNSALT OF WASHINGTON DIVISION
PENNSALT CHEMICALS CORPORATION
(Formerly Pennsylvania Salt Manufacturing Company of Washington)

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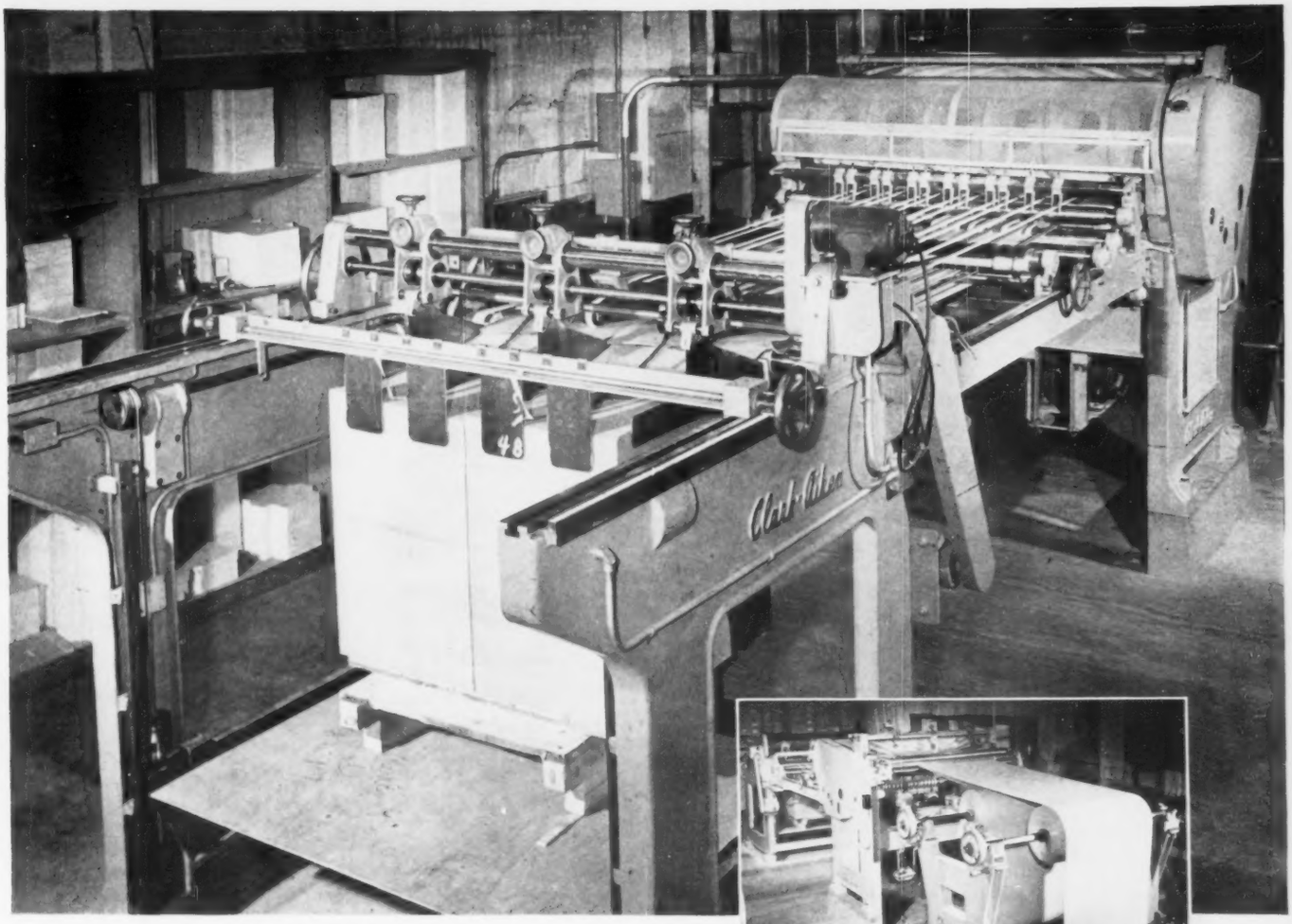
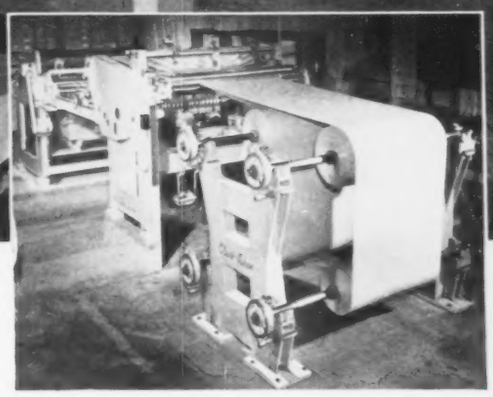
Pennsalt Chemicals





After nine months experience sheeting its own stock, Dean C. Mathews, Executive Vice President of Quality Park Envelope Company, St. Paul, Minnesota, reports:

". . . in addition to substantial cost savings, it simplifies procurement and storage problems. We used to buy paper in many sheet sizes; we now buy a few roll widths and are able to order, receive, warehouse and move our paper more easily and efficiently."

"Before . . . we sometimes encountered difficult problems procuring special sheet sizes for special large orders, making it necessary to quote long delivery dates. Now, in most cases, we can take care of these orders from inventory. Trim losses may sometimes be greater than with special size sheets but such losses are more than offset by the saving in price differential and other advantages."

"For stock envelopes, we normally sheet to standard sizes but substantial runs of special sizes are sheeted especially for the job, necessitating frequent change-overs. To make up for this down time, we wanted the highest speed sheeter available. This we found to be the Clark-Aiken machine."

Quality Park sheets various grades of stock ranging from 20 to 52 pound substance at speeds of 500 to 800 feet per minute, drawing from one to four rolls at a time. An additional two-roll backstand is contemplated to permit sheeting of commercial envelope stock from six rolls at a time and the company plans to sheet heavier weights up to 150 pound tag in the near future.

If you produce envelopes . . . or any other product requiring paper, board, film or fabric in sheet form . . . make important cost savings and place yourself in a better competitive position by sheeting your own stock on a Clark-Aiken Cutter-Layboy Unit. Let us know the grades, sizes and approximate quantities you use and our engineers will study your requirements and offer you some interesting figures.

West Coast Office 114 East Union Street, Pasadena, Calif.

Quality Park Envelope Company simplifies stock procurement storage, handling . . . . . speeds deliveries on "specials" . . . . . CUTS COSTS BY SHEETING OWN STOCK WITH A CLARK-AIKEN CUTTER-LAYBOY UNIT

THE Clark-Aiken COMPANY

957 SPRINGFIELD ROAD

LEE, MASSACHUSETTS

Buckeye has perfect control

from pulpwood to wood pulp

From forest to finished product, every step in the manufacture of Buckeye Pulp is engineered and controlled to the Nth degree. Our 800,000 acre tree farm in Florida is carefully supervised, harvested and replanted with superior seedlings. At the huge Buckeye plant, custom-designed equipment and advanced processes convert selected logs into wood pulp to meet the most exacting standards of quality and uniformity. Every stage of production is constantly checked and double-checked by a rigid system of plant and laboratory controls.

Visitors to our Foley plant are amazed at all that is done to make sure of complete customer satisfaction. It can pay you to discuss your requirements for bleached or semi-bleached kraft with us. Address inquiries to:

BUCKEYE CELLULOSE CORPORATION, Memphis 8, Tenn.

Wood Pulp Plant at Foley, Florida
Cotton Linters Pulp Plant
at Memphis, Tennessee

BUCKEYE PULP

Bleached and Semi-Bleached Kraft
from Southern Pine

TO HELP YOU PROCESS MORE PROFIT FROM PAPER

OK BRAND

STARCHES

the complete paper mill line...

OK Keogel—An effective cold water swelling beater additive. Simple to use ... no cooking... just add to beaters. Requires no involved equipment or cooking procedures. Disperses readily ... causes no "Fisheyes." High resistance to breakdown ... for better starch retention and higher strength tests and fiber bonding.

OK Keofilms—Complete range of controlled viscosity thin boiling starches ... adaptable to many surface sizing problems.

OK Keozyme—High purity, consistent, carefully processed corn starch for enzyme conversion. Exacting quality control to insure low residue and optimum conditions for proper enzyme action. For surface sizing or pigment coating binder this starch offers highest quality available.

OK Keoclors—A new line of oxidized starches ... for coating adhesive and surface sizing application. Surface sizing at press or calender will benefit from controlled and stable viscosity, good penetration and color. Adhesive strength and colloidal characteristics offer improved bonding and operation for medium and low solids pigments coating.

OK Keocote—Enzyme converting corn starch with lower than normal peak viscosity. Particularly adaptable to operations requiring conversions at high starch solids or in presence of pigments. Low initial viscosity permits more rapid heat transfer and even conversion.

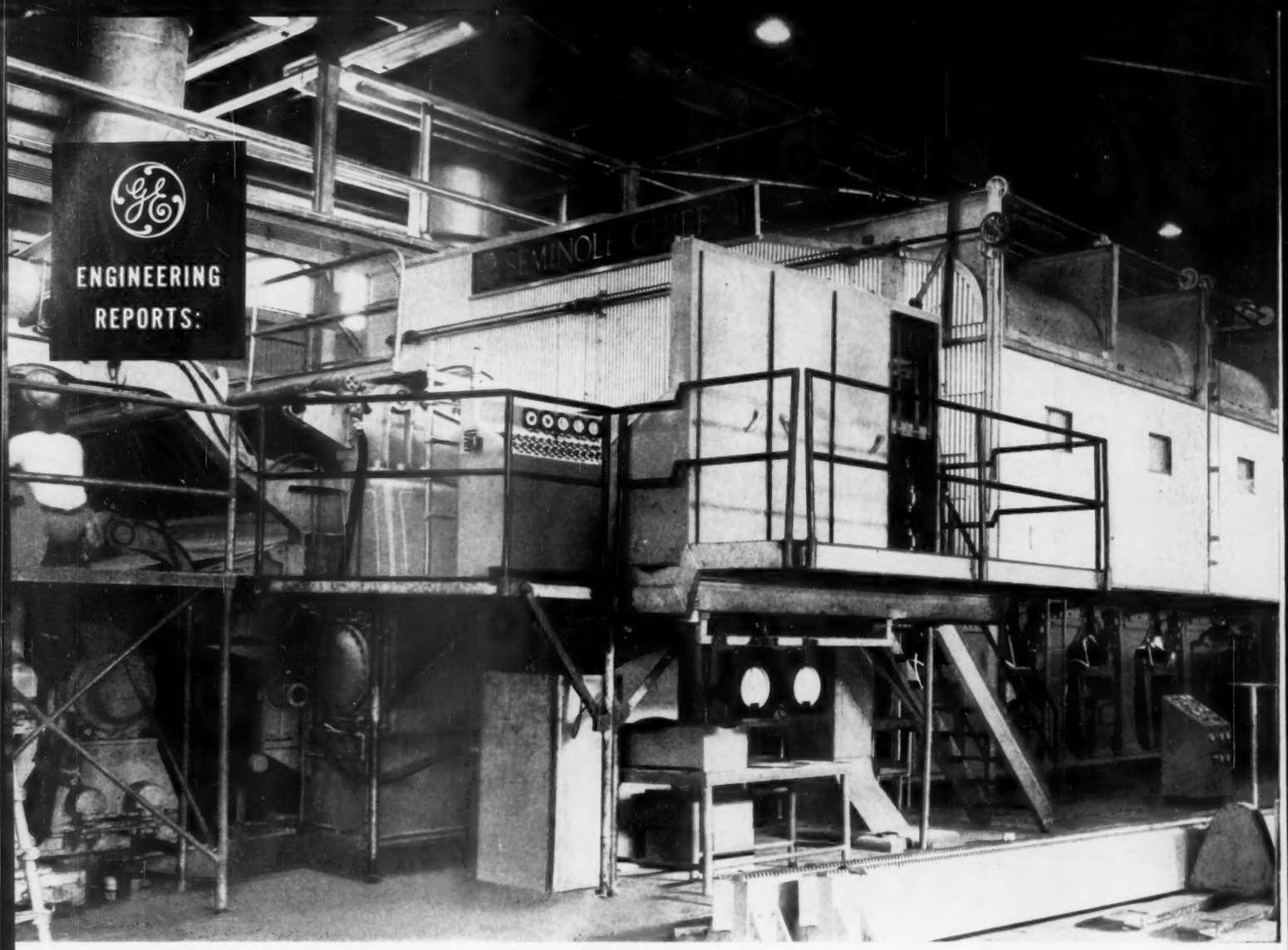
OK Special—Starches will be formulated for your needs ... phone or write for a Hubinger paper starch representative who will be glad to help you solve any starch related problem.

HUBINGER 77 YEARS MAKING PRODUCTS FROM CORN

The Hubinger Company

KEOKUK, IOWA

New York • Chicago • Los Angeles • Boston • Charlotte • Philadelphia



GENERAL ELECTRIC HELPER DRIVE SYSTEM POWERS . . .

World's Biggest Kraft Board

New "Seminole Chief" adds 1000 ton-per-day capacity to St. Regis' Jacksonville, Fla., mill.

PLANNING ELECTRICAL EQUIPMENT requirements for mill expansion are (L-R): G.E. Shaad and J. B. Peebles, Jr., both General Electric Co.; and L. C. Crowder, Chief Engr., O. A. Smith, Staff Engr., and J. A. McDermott, Gen. Mgr. of Pulp and Paper Production, all from St. Regis Paper Co.

The huge new paper machine with a rated capacity of 1000 tons per day is now operating at the St. Regis Paper Company's Jacksonville, Florida, mill. Part of an expansion begun two years ago, the newest and largest kraft board machine in the world manufactures paperboard used primarily to make corrugated containers. Known as the "Seminole Chief," the new Fourdrinier machine built by Beloit Iron Works is designed for speeds up to 2500 feet per minute.

ELECTRICAL EQUIPMENT furnished by General Electric for the mill expansion includes the electrical helper drive and the world's largest regenerative tension winder drive for the machine rewinder. Featuring static regulators self-contained in the control line-up, the helper drive supplies a total of 990 horsepower distributed over 12 motors applied to wet and dry end sections. Accurate control of machine operation is achieved by regulation of current, voltage or speed, based on individual section requirements. The factory-wired static regulators allow a savings in installation time and space, as well as a reduction in rotating equipment maintenance.

THE WINDER DRIVE can accelerate or decelerate in approximately ½ minute, can stop in emergencies in 15 seconds. A 500-hp direct-

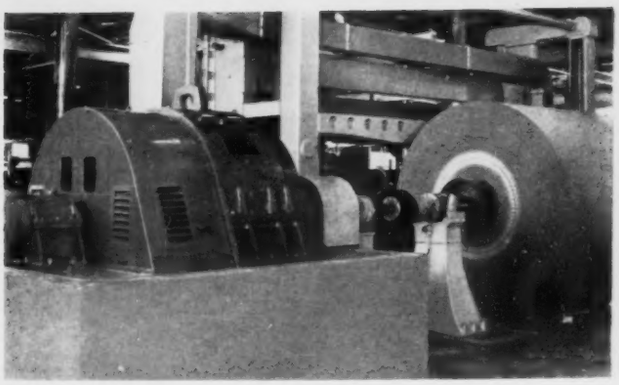
Machine

coupled braking generator operates over a mill roll build-down range of 4:1, controls sheet tension to a pre-set value from 2½ to 11½ pounds per inch of width. Two 400-hp motors power windup stand at speeds up to 6500 feet per minute. Operator's console permits complete control of rewinding operation, requires minimum of operator attention.

CO-ORDINATION of equipment into a flexible, easy-to-maintain electrical system—designed to meet the special needs of this mill—was the result of close cooperation between St. Regis and General Electric engineers. Whatever your drive requirements, G-E engineering services are ready to help design, equip, and install a co-ordinated electrical system from one-line diagram to on-time startup. Simply contact your nearest General Electric Apparatus Sales Office for more information on paper mill drive systems. Or write for bulletin GEA-6508, Drive Systems for Pulp and Paper Mills, General Electric Company, Section 655-21A, Schenectady 5, New York.

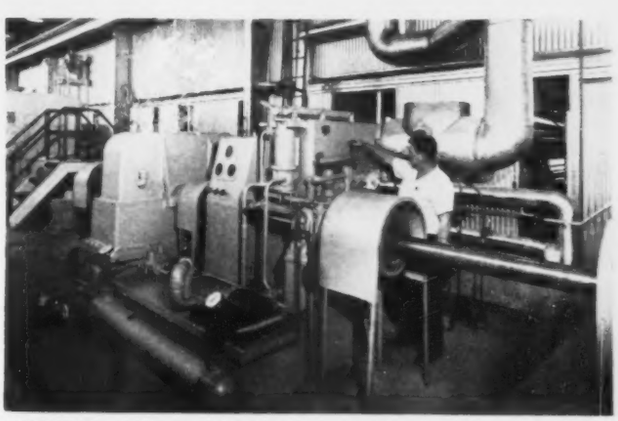
Engineered Electrical Systems for the Paper Industry

GENERAL ELECTRIC

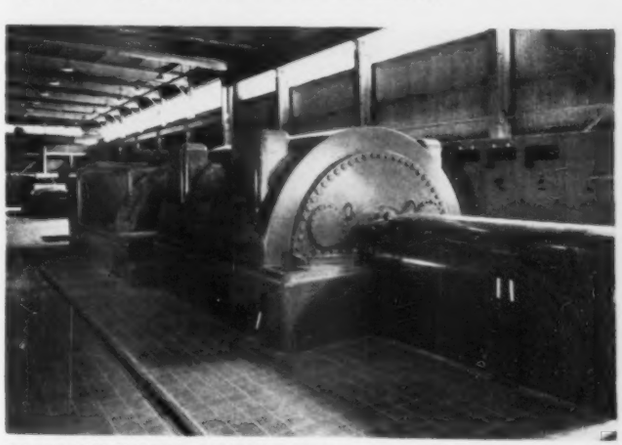


WORLD'S LARGEST regenerative tension winder drive has 500-hp direct-coupled braking generator, two 400-hp windup motors to power winder up to 6500 feet per minute.

MAIN M-G SET for winder drive is rated 400 KW. Installation was simplified by use of high capacity busway to interconnect elements of winder drive.



MECHANICAL-DRIVE TURBINE is rated 3600 hp, and provides speed regulation of .1% for mechanical line shaft drive.



30,000 KW TURBINE-GENERATOR increases mill's total generating capacity to 53,000 KVA, is tied to present distribution system permitting shift in steam or load between existing and new equipment.

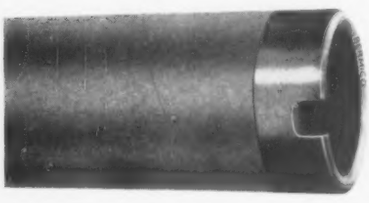
You get 3 big advantages with Sonoco cores!

First, Sonoco buys its own raw material, makes its own paper and exercises rigid quality control over all manufacturing operations. The result is a uniform product assuring top performance—core after core.

Second, Sonoco offers you the widest selection of cores in the industry. You can be sure of getting a core best suited for your needs—returnable or non-returnable.

Third, Sonoco can supply you with famous Bermico metal ends on all standard core sizes—making the perfect combination for dependable, long-life service at lowest cost.

If your need is for a better core, write to Sonoco *for samples today!*



SONOCO

Paper Mill Cores

SONOCO PRODUCTS COMPANY

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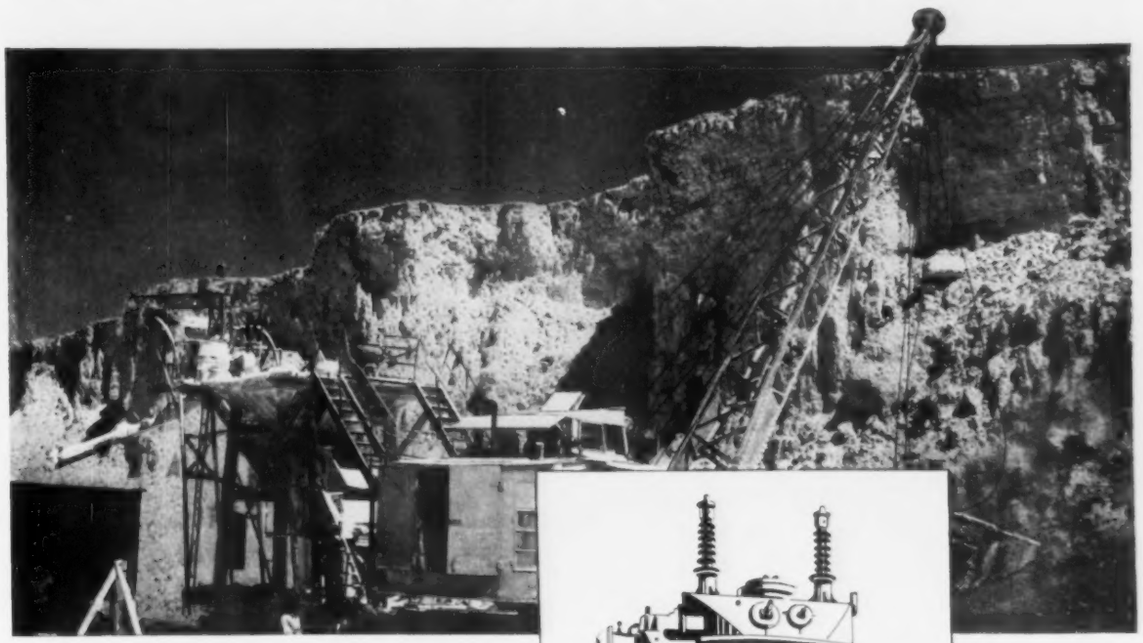
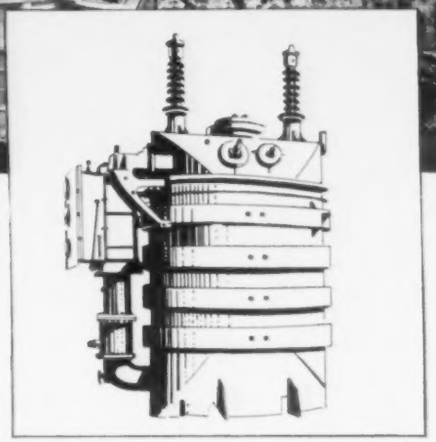
SULPHUR *helps to create Headline Products*





SF_6

A new concept in transformer insulation

GAS INSTEAD OF OIL... *that is headline news!*

Sulphur Hexafluoride is a heavy, non-flammable gas and is both chemically and physiologically inert. These characteristics plus its high dielectric strength pin-pointed the heavy duty transformer field as a logical target. And so it turned out!

SF6 instead of oil is now being used in high voltage transformers with the following advantages:

- **operations are much quieter**
- **lighter construction permissible**
- **less restriction in location**
- **lower maintenance**
- **fire-proof and explosion-proof**

In SF6, the electrical and electronics industries are finding a very useful product providing both electrical insulation and cooling. As in so many 'headline' products serving industry, the element S is part of the chemical structure!

Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N.Y.
811 Rusk Avenue, Houston 2, Texas

Sulphur Producing Units
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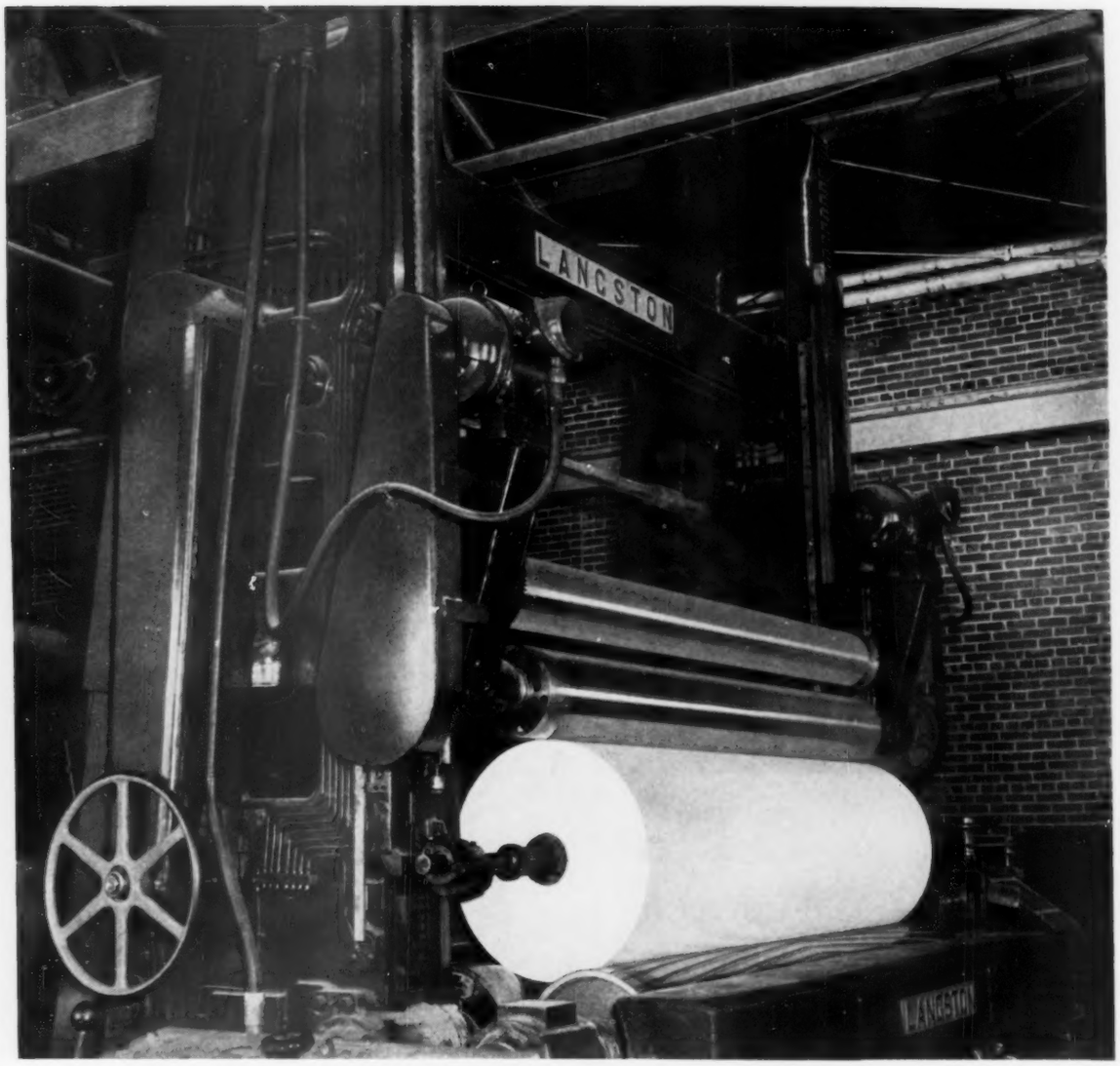
- **Moss Bluff, Texas**
- **Spindletop, Texas**
- **Worland, Wyoming**



Langston Slitter and Winder features precision roll density control

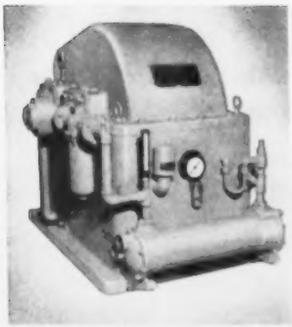
Here's a way for you to get uniform roll density from the core to the outside. This type "DH" Slitter and Winder features hydraulic rider roll control that automatically adds or subtracts rider roll weight.

This arrangement makes it possible to constantly maintain correct nip pressure to compensate for the changing diameter and weight of the rewound roll. A simple valve permits setting the correct rider roll weight for various grades and basis weights of both paper and board.

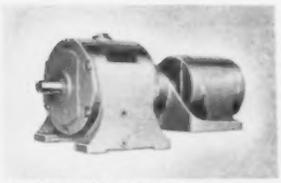
Pushbuttons for raising and lowering the rider roll during threadup replace complicated chains, sprockets, and bulky counterweights, thus speeding up production by reducing setup time.

Learn more. Write SAMUEL M. LANGSTON Co., 6th & Jefferson Sts., Camden 4, N.J.

LANGSTON *Leadership...by design*

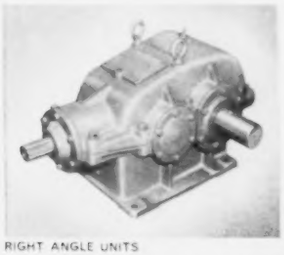


HIGH SPEED UNITS



ALL MOTOR GEARMOTOR

PARALLEL SHAFT UNITS

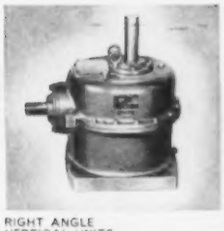


RIGHT ANGLE UNITS

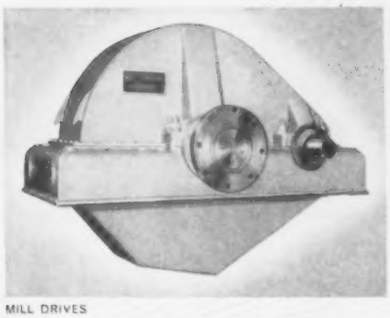
INTEGRAL GEARMOTORS

STRAITLINE UNITS

"INDUSTRIAL MUSCLES" BY WESTERN GEAR CUT YOUR OPERATING COSTS



RIGHT ANGLE VERTICAL UNITS



MILL DRIVES

Western Gear's family of mechanical power transmission products, ranging from gearmotors, speed reducers of all types and shaft arrangements, ratios and horsepowers, to high speed units have been designed and developed over a period of many years. They can do a better job for you, at lower costs, because they incorporate customer proved and preferred features, backed by 70 years of engineering and manufacturing experience at Western Gear. Units range from 1 HP to 50,000 HP, and many modified designs are on file which may exactly suit a custom requirement. Why not use the coupon to get the name of our nearest application engineer or data on any of the drives shown above. No obligation of course!

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it's a snap

Disassemble this pump in less than 10 minutes without disturbing pipe or motor connections

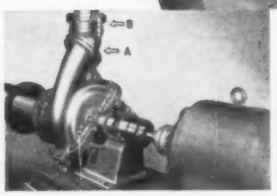
Cut the "down time" for pump maintenance in your mill with this Goulds pump.

You can get at the rotating element in less than 10 minutes. The casing is split diagonally . . . with a hinged cover and jacking bolts to make disassembly easier. This construction saves your time and money by speeding repairs and inspections.

Goulds Fig. 3135 is specially designed for handling paper stock . . . as high a consistency as you can get into the impeller. The pumps are available in a wide range of special metals to resist corrosion.

Other built-in features offer you further savings that come from long life and dependable service. Fig. 3135 is described in Bulletin 723.1. Call your Goulds representative today and ask him for a copy. Or write us.

FOR INSTANCE...disassembly is as easy as this with the Fig. 3135:



Remove the bolts connecting discharge elbow and pump casing (A). To get clearance and save gasket, telescope the discharge elbow into discharge connection by a simple jacking arrangement (B).

Remove bolts connecting upper and lower halves of casing (A). Loosen top nuts (C) and raise upper half casing on hinge pin. Tightening hex nuts (D) raises casing off sideplate locks.

Attach chain fall and continue to raise casing. (On smaller sizes you can swing back the top casing half with a rod or pipe through the cored hole in casing web.)

With pump completely open, remove bearing cap, disconnect coupling and lift rotating element out. And you've not had to break any piping connections—nor move the motor.

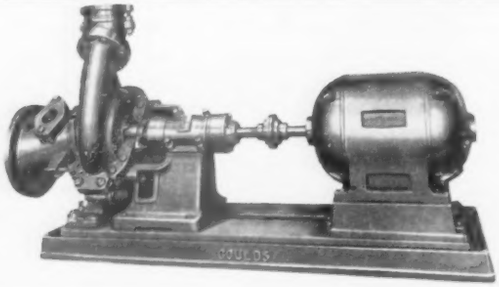


Fig. 3135 Paper Stock Pump

Capacities to 4000 GPM; heads to 215 ft.

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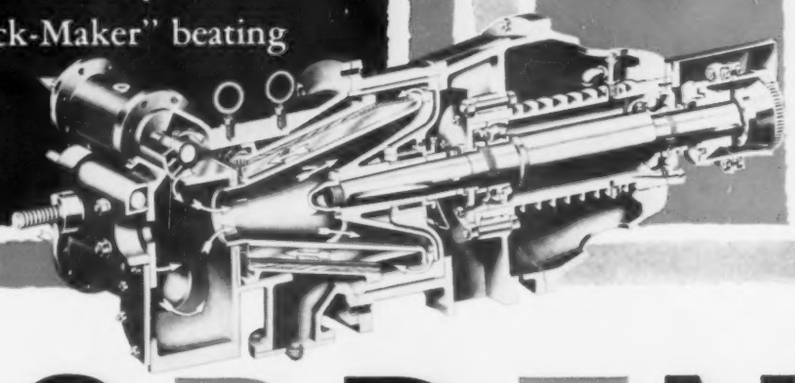

MORDEN

If your mill does not have the many advantages of Morden stock preparation equipment, don't delay—send for the Morden catalog today. We shall be happy to visit you for an in-the-mill discussion of your requirements.

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DU PONT'S 6-STEP SERVICE PLAN...

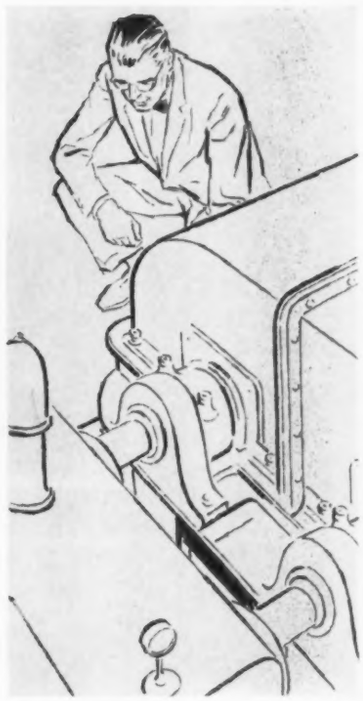
can help you produce

1. Mill Conference

A meeting is held with your plant personnel, at which time a Du Pont technical man outlines the latest bleaching methods for improving your pulp brightness. Initial suggestions, tailored to your existing conditions, are outlined.

2. Lab Trials

With your approval, tests are carried out in your own lab. Based on these lab tests, a detailed report is presented. This report covers complete plans for a mill trial and installation of equipment. Many mills go into production from this step.



3. Mill Trial

Du Pont technical men work with your men to prove out the results of lab tests on a production scale. This step points up the improvement in pulp brightness you can gain by using peroxide together with the latest bleaching methods.

Du Pont's 6-Step Service Plan can help in bleaching groundwood, chip mechanical, kraft, soda, sulfite and recovered pulps.

The Plan offers you the chance to improve product quality by increasing your pulp brightness. It's extremely flexible . . . some of the steps can be eliminated, depending on the situation at your plant.

Du Pont's 6-Step Service Plan is conducted by experienced technical people. They're fully trained and backed by Du Pont research and development laboratories. The recommendations of these men can help your operation, whatever type of pulp you bleach.

Du Pont's 6-Step Service Plan is available to you without cost or obligation. For more information or help with your pulp bleaching program just write us on your letterhead or call Du Pont direct.

FIRST WITH PROCESSES
AND SERVICES FOR PEROXIDE BLEACHING

brighter pulp and paper

4. Bleachery Planning

Du Pont technical men consult with your engineering personnel on the design and construction of the bleachery. In cooperation with your equipment manufacturer, they advise on the size and type of equipment to be installed.

5. Bleachery Start-Up

During the initial start-up, Du Pont technical men assist and advise your personnel on efficient bleachery operations. In-plant training helps bring your key men up to date on new bleachery operations and helps in achieving maximum results.

6. Continuing Service

After your new bleachery is in operation, they continue to be available for consultation, technical assistance and help on new developments. Experienced Du Pont technical men are conveniently located in all of the major bleaching centers.

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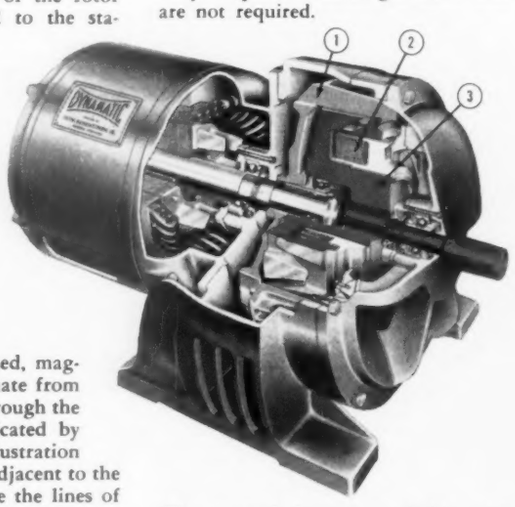
HOW DYNAMATIC® Drives Provide Infinitely Adjustable Speed with AC Power

Dynamatic Ajusto-Spede® and Dynaspede® Drives operate from an alternating current power source and are infinitely adjustable from zero RPM to full output speed. Accurate control of output speed is obtained by varying the current in a single field coil.

Each Dynamatic Drive consists of a constant speed AC motor and an eddy-current coupling. Torque developed in the motor is transmitted through the coupling by electromagnetic attraction between its driving and driven members.

The driving member, or drum (1), is mounted on the end of the motor shaft and surrounds the rotor, or driven member (3). The drum is free to rotate independently of the rotor until current is applied to the stationary field coil (2).



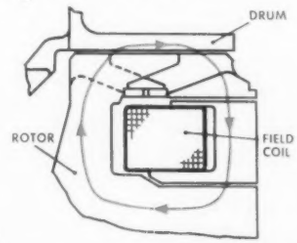
1. **Input Drum Assembly**
2. **Stationary Field Assembly**
3. **Output Rotor Assembly**

As the field coil is excited, magnetic lines of force emanate from the field coil and flow through the rotor and drum as indicated by arrows in cross-section illustration (A). Poles on the rotor adjacent to the smooth drum concentrate the lines of force into localized areas of "high flux" density in the drum's inner surface, shown in illustration (B). As the drum rotates about the rotor, these high flux areas sweep the inner surface of the drum, causing a variation of flux density that generates an eddy-current field in the drum's inner surface. Magnetic attraction between this eddy-current field and the rotor poles causes the rotor to rotate with the drum.

The torque transmitted from the drum to the rotor varies with the current applied to the field coil and with the "slip", or difference in speeds between the drum and rotor. Speed control with eddy-current equipment is obtained with a control system that adjusts field coil current to deliver the required torque at the desired slip.

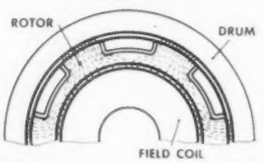
The control systems used with Dynamatic Eddy-Current Equipment operate on alternating current and require no special power source. Because of the low power required for field coil excitation, rectifying of field coil current is easily accomplished electronically. Expensive motor-generator sets are not required.

The control features available with Dynamatic Eddy-Current Equipment include constant speed regulation, acceleration control, torque regulation, cascading of multiple units, inching and threading, and numerous others as required by individual applications. Dynamatic Eddy-Current Equipment is ideally suited to automatic control.



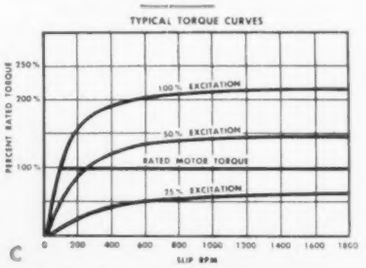
A

Flow of magnetic lines of force through rotor, drum, and stationary field.



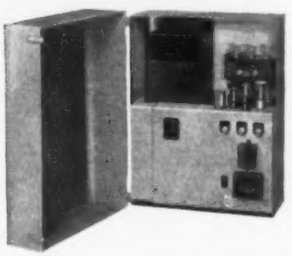
B

Concentration of magnetic lines of force by the rotor poles.



C

Typical torque curves show torque at various values of excitation. The horizontal line is rated motor torque.



D

The electronic control systems used with Dynamatic Eddy-Current Equipment do not require a special power source or motor-generator sets.

EATON®

Send for your copy of Bulletin D-582 which gives detailed information on Dynamatic Eddy-Current Equipment.

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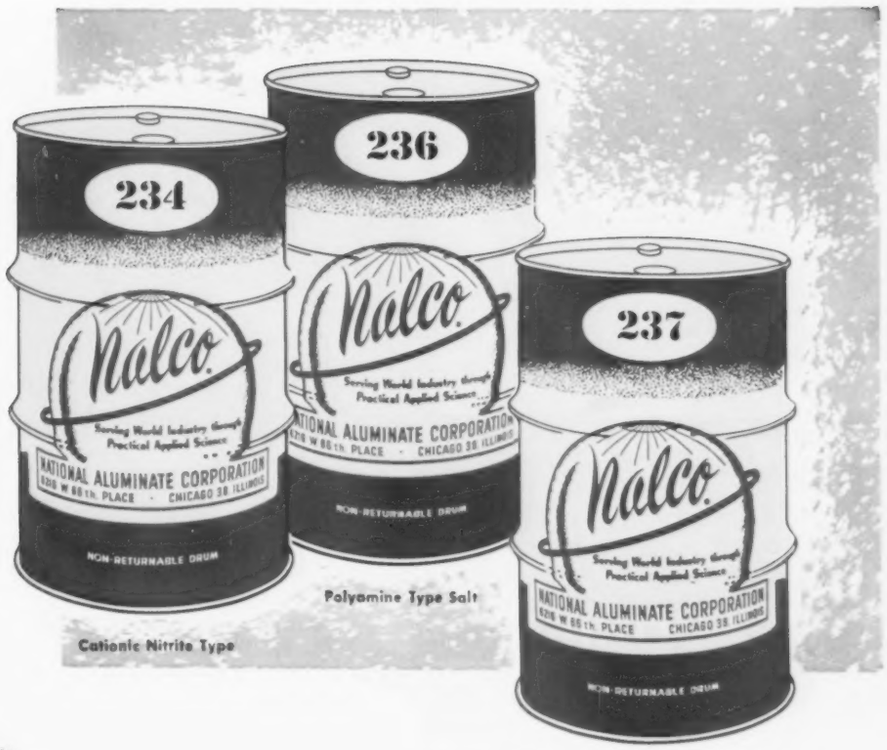

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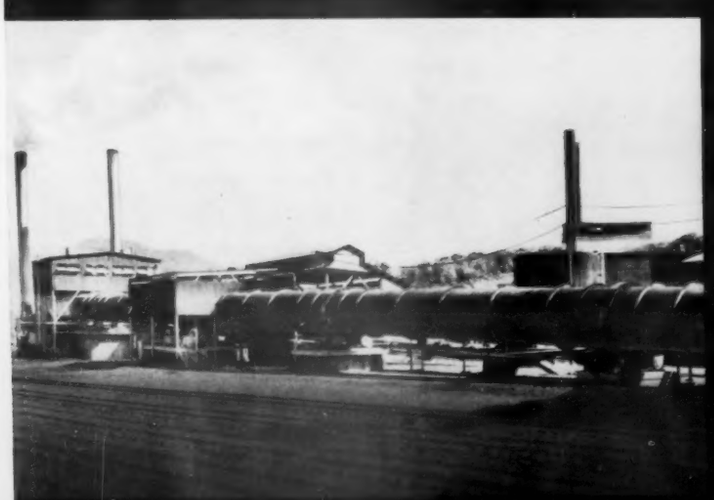

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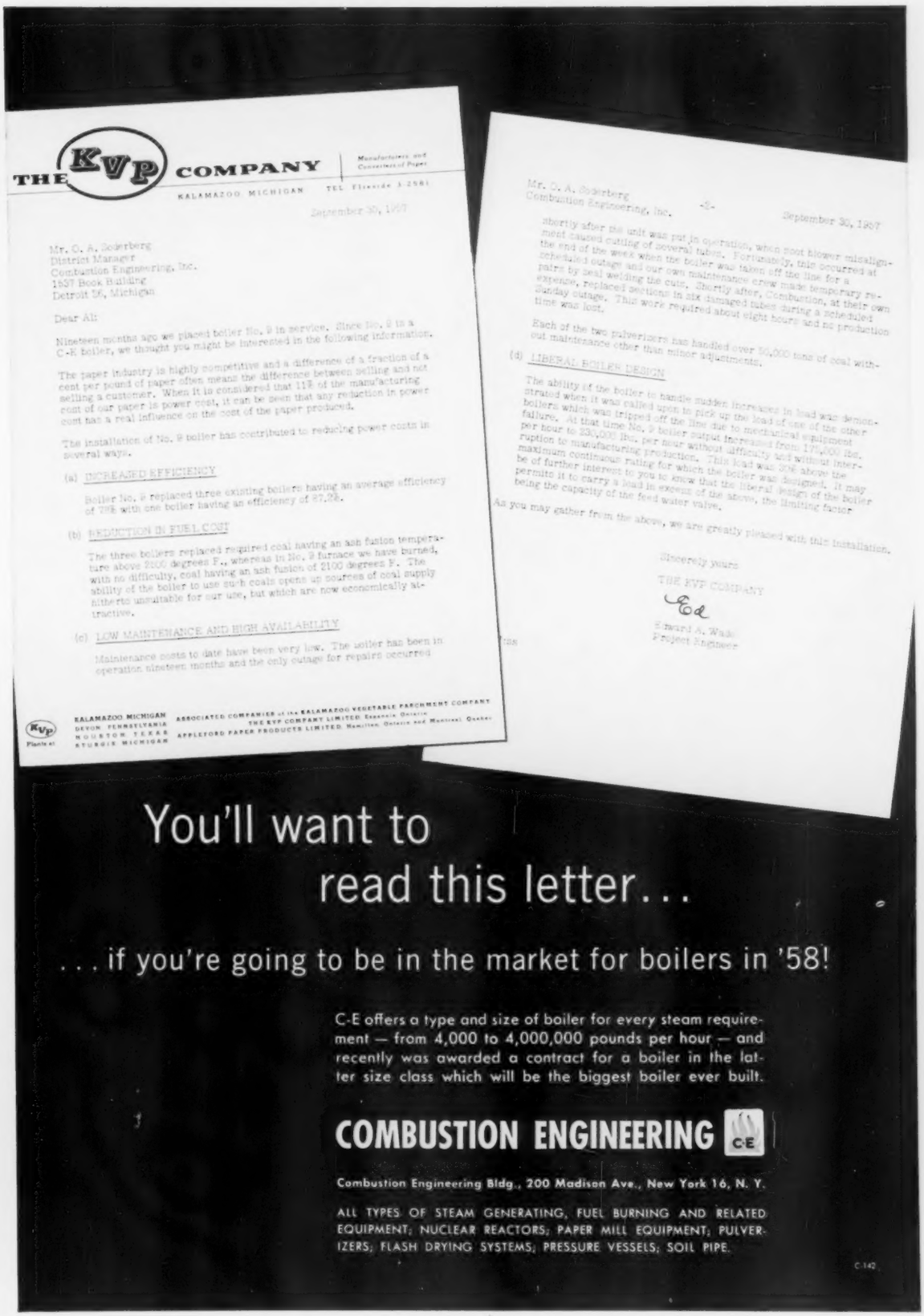

THE KVP COMPANY

Manufacturers and Converters of Paper

KALAMAZOO MICHIGAN TEL Fireside 3-2581

September 30, 1957

Mr. O. A. Soderberg
District Manager
Combustion Engineering, Inc.
1857 Book Building
Detroit 26, Michigan

Dear Al:

Nineteen months ago we placed boiler No. 9 in service. Since No. 9 is a C-E boiler, we thought you might be interested in the following information.

The paper industry is highly competitive and a difference of a fraction of a cent per pound of paper often means the difference between selling and not selling a customer. When it is considered that 11% of the manufacturing cost of our paper is power cost, it can be seen that any reduction in power cost has a real influence on the cost of the paper produced.

The installation of No. 9 boiler has contributed to reducing power costs in several ways.

(a) INCREASED EFFICIENCY

Boiler No. 9 replaced three existing boilers having an average efficiency of 79% with one boiler having an efficiency of 87.5%.

(b) REDUCTION IN FUEL COST

The three boilers replaced required coal having an ash fusion temperature above 2600 degrees F., whereas in No. 9 furnace we have burned, with no difficulty, coal having an ash fusion of 2100 degrees F. The ability of the boiler to use such coals opens up sources of coal supply hitherto unsuitable for our use, but which are now economically attractive.

(c) LOW MAINTENANCE AND HIGH AVAILABILITY

Maintenance costs to date have been very low. The boiler has been in operation nineteen months and the only outage for repairs occurred

KVP Plants at KALAMAZOO MICHIGAN, DEVON PENNSYLVANIA, HOUSTON TEXAS, KYBURZ MICHIGAN — ASSOCIATED COMPANIES of the KALAMAZOO VEGETABLE PARCHMENT COMPANY, THE KVP COMPANY LIMITED, Espanola, Ontario, APPLETON PAPER PRODUCTS LIMITED, Hamilton, Ontario and Montreal, Quebec

Mr. O. A. Soderberg
Combustion Engineering, Inc. -2- September 30, 1957

shortly after the unit was put in operation, when soot blower misalignment caused cutting of several tubes. Fortunately, this occurred at the end of the week when the boiler was taken off the line for a scheduled outage and our own maintenance crew made temporary repairs by seal welding the cuts. Shortly after, Combustion, at their own expense, replaced sections in six damaged tubes during a scheduled Sunday outage. This work required about eight hours and no production time was lost.

Each of the two pulverizers has handled over 50,000 tons of coal without maintenance other than minor adjustments.

(d) LIBERAL BOILER DESIGN

The ability of the boiler to handle sudden increases in load was demonstrated when it was called upon to pick up the load of one of the other boilers which was tripped off the line due to mechanical equipment failure. At that time No. 9 boiler output increased from 170,000 lbs. per hour to 230,000 lbs. per hour without difficulty and without interruption to manufacturing production. This load was 10% above the maximum continuous rating for which the boiler was designed. It may be of further interest to you to know that the liberal design of the boiler permits it to carry a load in excess of the above, the limiting factor being the capacity of the feed water valve.

As you may gather from the above, we are greatly pleased with this installation.

Sincerely yours

THE KVP COMPANY

Edward A. Wade
Project Engineer

You'll want to read this letter...

... if you're going to be in the market for boilers in '58!

C-E offers a type and size of boiler for every steam requirement — from 4,000 to 4,000,000 pounds per hour — and recently was awarded a contract for a boiler in the latter size class which will be the biggest boiler ever built.

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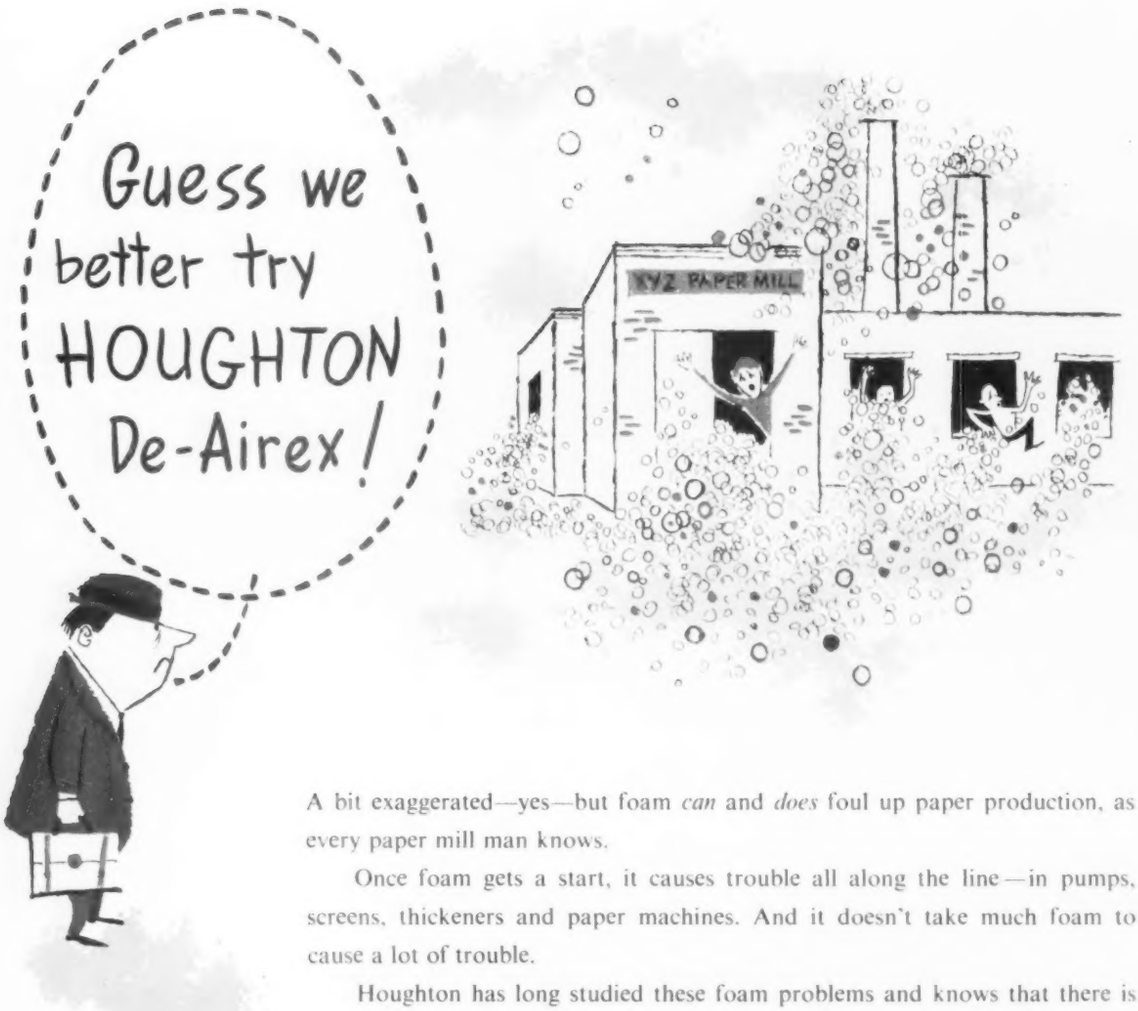
C-142



A bit exaggerated—yes—but foam *can* and *does* foul up paper production, as every paper mill man knows.

Once foam gets a start, it causes trouble all along the line—in pumps, screens, thickeners and paper machines. And it doesn't take much foam to cause a lot of trouble.

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Call or write the Houghton Man. He will take a sample of your stock, have it analyzed and a specific De-Airex recommendation made. All this costs you nothing. Then he'll supervise a test in your plant under your operating conditions and begin the solution of this serious problem.

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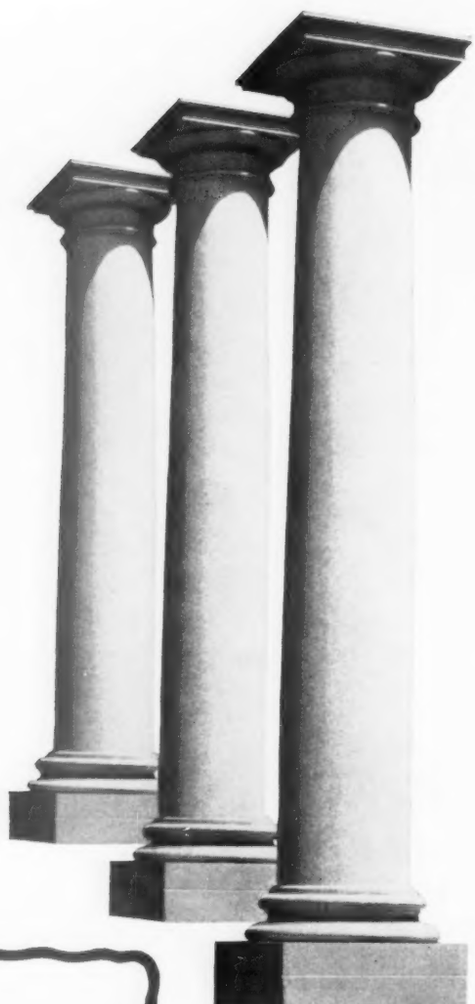

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RAKING AND WINDROWING
In an experimental site preparation project
near Brunswick, Ga., CAT* D9 Tractor with
Fleco Multi-Application Rake sets production pace

To determine the various applications of crawler tractors and land clearing equipment for site preparation, Caterpillar Tractor Co. and the Brunswick Pulp & Paper Co. held a three months' series of field experiments near Brunswick, Ga. One series involved raking and windrowing. The stand chosen for treatment was classified as hammock lands with live oaks up to 72" in diameter, turkey and water oaks running into heavy palmetto, gall berry, myrtle and vine areas. Merchantable timber had been harvested but no clearing completed. Equipment in this experiment included the D9 shown above, a D8 with Fleco Rock Rake and a D7 and a No. 977 Traxcavator with Fleco Rakes.

Each machine was assigned to a plot. The giant 320 flywheel HP D9 cleared the densest areas, while the D8, D7 and No. 977 handled the less dense and light plots. In these plots, the machines were able to push the accumulated cover 165' directly to the windrow. Very dense conditions, however, required that the tractor push the vegetation down parallel to the windrow. Operator judgment determined the method used. This technique utilized the rake as the felling, raking and windrowing one-purpose tool.

See your Caterpillar Dealer for complete information on this operation as well as other phases of the experimental studies such as: stump clearing and cutting, chaining, stump treatment and harrowing.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

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The ideal woods-worker, the OC-15 has all the power to handle your heaviest loads with new speed and ease. Oliver's high-clearance, unobstructed design lets you ride over stumps, rocks, mud—where other tractors take time out to go around.

In nationally recognized official tests, the OC-15 came out first for power against every other tractor in its size class. It's the power leader *any way you rate it!* In total, the OC-15 is the most powerful, performance-packed, profit-making crawler for its size yet. It's 1958 modern...and ready for you right now!

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- Compare it on every count—price especially. You'll want the OC-15!

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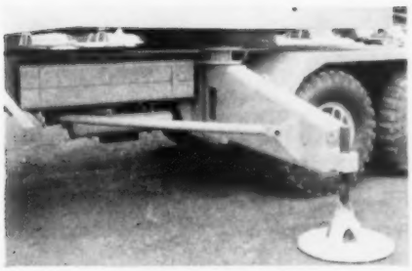
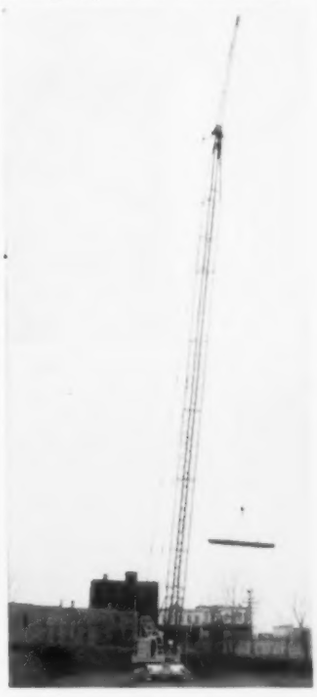
a complete line of industrial wheel and crawler tractors and matched allied equipment



AMERICAN'S EXCLUSIVE outrigger system sets up quickly, easily. Screw jacks, with large suspended aluminum floats give you fast, safe blocking. By reducing frame stresses, this revolutionary concept in outrigger design results in a lighter weight carrier—allows use of stronger machinery deck equipment for heavy duty work. It provides a stable base for handling the longest boom, the biggest loads in its class. Only the 500 Series can swing rated loads safely through a full 360° arc!

CAPABLE OF PICKING UP 150 feet of boom and 30 feet of jib—180 feet in all—this new American Truck Crane demonstrates its amazing stability, balance and power! The rugged boom sections, strongest in the field, are a full four feet square. Only the 500 Series can handle so much boom—offer such great lifting capacities in its class.



ALL NEW . . . from exclusive swinging outriggers to the longest, strongest boom in its class . . . it's the American 500 Series Truck Crane. Revolutionary new features put this heavy duty 40-ton capacity crane far ahead in on-the-job versatility, performance and operating efficiency.

NEW AMERICAN 40-TON TRUCK CRANE SWINGS RATED LOADS A FULL 360°!

You can pick up or spot loads *all around* the new American 500 Series Truck Crane. New scientific design permits a full 360° swing with full rated loads to give you materials handling flexibility never before possible with any truck crane. Examine the 500 Series—you'll find that it offers an unbeatable combination of strength and the greatest capacity—with the longest boom—in its class! The American's low over-all height and lighter travel weight are important in over-the-road moves.

Mechanically, you'll find that the 500 Series offers such important advantages as specially designed graduated air controls that give positive clutch control from smooth, easy engagement to full pressure with finger tip effort . . . liberal use of anti-friction bearings—in swing rollers as well as deck machinery . . . individually removable shaft assemblies . . . new design machinery base featuring straight-through girders and integrally welded roller supports that offer maximum strength, minimum weight and accurate roller alignment . . . engine controlled load lowering . . . engine controlled boom lowering . . . retractable high gantry . . . plus countless other job-tested features that cut operating costs, boost efficiency and keep your jobs on schedule month after month. Your American Distributor will bring you detailed information, all the facts on this important addition to the big American Excavator and Crane line that offers capacities starting at $\frac{1}{2}$-yard, 12$\frac{1}{2}$ tons and up!

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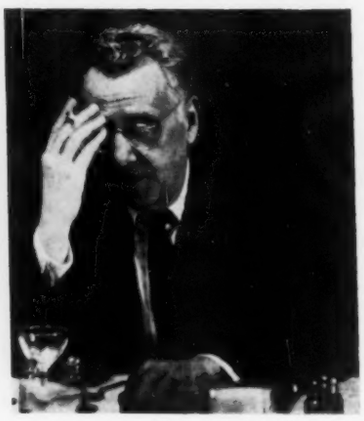
DERRICKS-HOISTS to 800 tons
REVOLVER CRANES to 400 tons



SPCA's Top Speaker, Jonathan Daniels:

"Conservation is . . . for people . . ." "From root hog or die we have moved . . ." ". . . to a philosophy of plant, or perish."

How Forestry Boosts Dixie Progress

Manager Malsberger's exciting report, dramatic address by Editor Daniels provide inspirational fireworks for SPCA

• Early in 1957, International Paper Company published an exciting book entitled "The Forest is the Future."

But from the reports of progress in forestation and pulpwood production during this past year it would appear that the forest, in fact, is the present.

Even the peripatetic Jonathan Daniels, widely-known editor and publisher of the Raleigh, N.C., "News & Observer," author of the impressive IP tribute to Dixie's forests, as much as admitted this when he addressed the 1958 Southern Pulpwood Conservation Association's annual meeting in Atlanta's Dinkler-Plaza Hotel last month.

"The mounting growth of the pulp and paper industry in the South," said Editor Daniels, ". . . in some substantial figures . . . has made my story out of date." As proof, he cited one of these figures. When he wrote his book, he stated the industry in the South had planted 179 million seedlings on its own lands. Correct at the time, this figure rose the following year to 222,135,900.

An Impressive Record . . .

Just how staggering are the results of the industry's progress in the South was made quite clear when SPCA Forester-General Manager H. J. Malsberger made his always fact-filled annual report. Some of the meat of that report:

The South's 63 primary pulp and paper mills purchased a total of $405.4 million in pulpwood in 1956 (last year complete figures were available); they employed 77,104 persons with a payroll of more than $372 million; the replacement value of these mills is nearly $3 billion; they own 18,492,000 acres of forest land and produced nearly 4 million cords of pulpwood from these lands; they now support some 620 outlying woodyards in Dixie and have produced 154 million seedlings, 56 million of which were supplied to private landowners. Full time jobs provided by pulpwood harvesting: 81,081.

"In just 25 years," said Mr. Malsberger, "the pulp and paper industry has grown into the most far-reaching economic force in the region. Trees are grown on more farms than any other crop and a survey reveals the industry is contributing more than a million dollars daily to the economy of the South."

In one state, Arkansas, the value of pulpwood produced exceeds the payroll of the two operating pulp and paper mills that the state. It is interesting, too, to note that Arkansas's industry contributes some $3.6 million to the economy of the state every year—while one of the smallest of the Southern states, it has the highest over-all industry payroll and expenditure in Dixie.

The economic importance of the industry was stressed again and again during the three-day meeting. Said speaker Daniels: "Comparisons are odious . . . but comparison with some other low-wage industries in this region is implicit in the fact that pulp and paper industry people get an

SPCA's New Prexy

Lucien Whittle, woodland mgr. of Brunswick P&P, takes over SPCA reins. Vice president-elect is Carl Swenning, Hollingsworth & Whitney Div., Scott Paper.

average pay of $2.16 an hour—which adds up to a total, better-living payroll in the South of more than $351 million. Replacement value of these mills is ten times a similar figure for 1938 and twice the figure of 10 years ago."

What SPCA Accomplished . . .

During the past year, the SPCA 31 member mills (including its new members, Gulf States' new Demopolis mill, Sonoco Products Co. and Marathon Southern Corp. at Naheola, Ala.) conducted 20 "Get-Acquainted" meetings to better explain their role in the South to their neighbors (last year: seven meetings). The SPCA distributed almost 300,000 pieces of forestry literature on request for its educational materials. Forestry education movies were shown to 68,650 persons and 245 TV and radio programs were prepared. Industry personnel made 104,625 personal contacts to landowners and other interested parties. SPCA-member foresters marked trees for 12,100 landowners on 519,000 acres (last year 850 on 516,600 acres) from which were cut 1,235,000 cords of pulpwood. In all fields of assistance provided by members, nearly 23,000 landowners were served involving 6,100,000 acres.

Little wonder, after such a record year, that this meeting attracted a record number of woodlands people, suppliers and pressmen. As its retiring president, R. C. Barienbrock of the Mead Corp., stated in his address: "The scope of this organization continues to stagger the imagination."

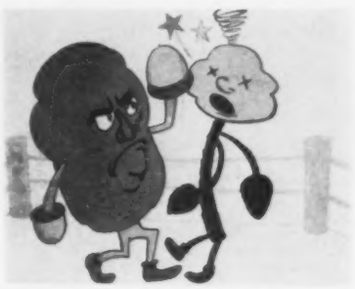
It was left to Mr. Daniels to put the final touch on this session of optimism and inspiration. Said he: There's a good deal of truth to the idea that historically in the South, the landlord was said to stay awake all night figuring how to rob the tenant while the tenant was staying awake figuring how to rob the landlord. It was the old business of root hog or die . . . steal man or starve.

"Nothing in our time has happened of more significance than the new partnership of forester and businessman in a process in which conservation is necessary to profit and profit to conservation.

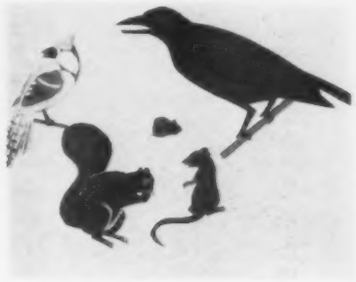
"From root hog or die, we have moved to a philosophy of plant, man . . . or perish. It may be unpoetic, but nobody ever planted a tree for a tree's sake. Conservation is not for the forests . . . it is for the people."

Talking Shop . . .

J. W. (Bumps) Hemphill (right), sales mgr. of Carthage Machine Co., meets old friend H. M. (Red) Shirley, Hudson Pulp and Paper's woodlands mgr. at Palatka, Fla.



These Seemingly Harmless Forest Creatures . . .



Aid Hardwoods to Deliver Kayo Punch to Pine

"Put finger on hardwood culprit" Is plea of Frank Hayward to SPCA

Hardwood replacement of pine in the South could be called an "economic catastrophe" says Frank Hayward, Jr., public relations director of the Gaylord Container division of Crown Zellerbach.

To prove his point, SPCA-speaker Hayward pointed to the creeping encroachment of hardwoods on pine lands; in 20 years (1932-1952) it replaced 13 million acres of pine. Today, culled hardwoods constitute an acreage roughly the size of all the state of Mississippi and half of Alabama—a fourth of the area of the South.

Some of the reasons given by Mr. Hayward: Pine does not regenerate well without some assistance; since fire is a great aid in deterring hardwood growth, forest fire protection has the unbeneficial effect of aiding hardwood encroachment, just as tilling the soil also aids erosion. Forest creatures like the squirrel (which buries potential hardwood seeds, forgets where they are, actually "plants" hardwoods); blue jays (which eat cherry, red cedar seeds which later are ground up in its gizzard, helping germination), crows (which spread seeds about by dropping them), wood rats and other small animals (which make nests in the forest floor, thus providing "hot houses" for seed growth)—multiplied by thousands, says speaker Hayward, these creatures become a major pain in the neck.

The answer, says Mr. Hayward: Increasing stress on site prep; destruction of more hardwoods by girdling and other methods; increased utilization, which by itself cannot provide an adequate answer to the hardwood headache.

Two New Tractors Announced

New crawler and wheel-type tractors and matched working equipment are announced by John Deere Industrial Div., Moline, Ill. The new 440 series have protective front grille and heavy cast grille frame which requires no extra guard. There is room between the grille and engine on the crawler for front-mounted, crankshaft-driven pumps. The hood is of heavy steel plate and sideframes are of extra-heavy welded steel construction.

The 440 crawler is mounted on two heavy steel cross members that absorb shocks. Single track-tension springs adjust easily and accurately. It has foam-rubber padded seat and clutch-brake steering. The 440 wheel-type tractor has a new heavy-duty front axle and support. Built-in power steering for this model is optional.

New clutch-type direction reverser is optional for both 440 series tractors. This device permits the operator, with a touch of the lever, to go ahead or back up in the same speed without shifting transmission gears. Other optional features include 3-point hitch, hydraulic controls, special mufflers and electric lighting.

The tractors are powered by John Deere 30 hp valve-in-head engine.

LIFTING A CORD OF PULPWOOD, Manitowoc crane equipped with Mack orange peel grapple swings toward one of new steel flumes: Eventual destination, chip silos in rear. At right are two of eight Chicago Bridge & Iron steel chip silos with Link-Belt rotary feeders in lower hoppers.

How St. Regis Met Demand for Four Times the Wood

It took plenty of planning back in woodlands to get ready for an expansion program quadrupling the size of mill but . . .

● St. Regis was not caught napping as far as wood is concerned when its giant machine "Seminole Chief" started up (story of mill expansion is in front section of this issue).

To meet the pulpwood hunger of 1,300 tons of paper a day, the company had a reserve power of a million acres of Southern timberland—all of it under a revolutionary, clearly defined forest management plan (See "St. Regis Goes Around in Circles", page 134, PULP & PAPER, June, 1957.) Its pulpwood concentration yards now spread out into Georgia and Alabama, some 150 miles from the mill. A continually growing chip procurement program which could someday provide as much as a quarter of its woodlands needs now reaches out to lumber yards in the area. Its nurseries are capable of providing nearly 25 million seedlings a year to both company and private landowners. And it participates in the widely-acclaimed genetics programs at both the Universities of Georgia and Florida—aimed at developing even better trees for the future.

ALBERT ERNEST, vice president in charge of southern woodlands and wood procurement.

Woodyard Spreads its Wings . . .

To store this increase in wood, the woodyard at the St. Regis mill is roughly twice its former size. Four existing wood storage areas were lengthened about a third and a fifth was built, all of them paved with asphalt concrete. Two additional rail spurs and a trailer dump were also added.

The flume system also was boosted. Between the two existing flumes, a 500 ft. steel-lined flume was added. Another flume, 860 ft. long, was

MARCUS RAWLS, woodlands manager, Jacksonville area.

added adjacent to the new hardstand. Water is circulated through these four water troughs by two 16,000 gpm Worthington flume pumps with belt driven 100 hp motors. Grit and bark are removed by Link-Belt traveling screens.

Wood is delivered to the flumes by two new Manitowoc 3900-B crawler cranes equipped with Mack one cord orange peel grapples, supplied by M. D. Moody and Sons. A 17½ ton rubber-tire-mounted Lorain crane with a wood rake rounds out the new woodyard delivery equipment. It was supplied by Finn Machinery Co.

Barking and Chipping Expanded . .

From the flumes, wood is delivered on chain conveyors to two new Fibre Making Processes barking drums, 12 ft. by 67½ ft. long. Drums are driven by American Blower 150 and 75 hp motors through American Blower hydraulic couplings. Bark is carried away from beneath the drums on two Link-Belt conveyors and delivered to two Gruendler bark shredders. Bark is carried to the bark burners on a moving belt and a 70 ft. diameter storage area is available for excess bark—which can later be reclaimed by Payloaders.

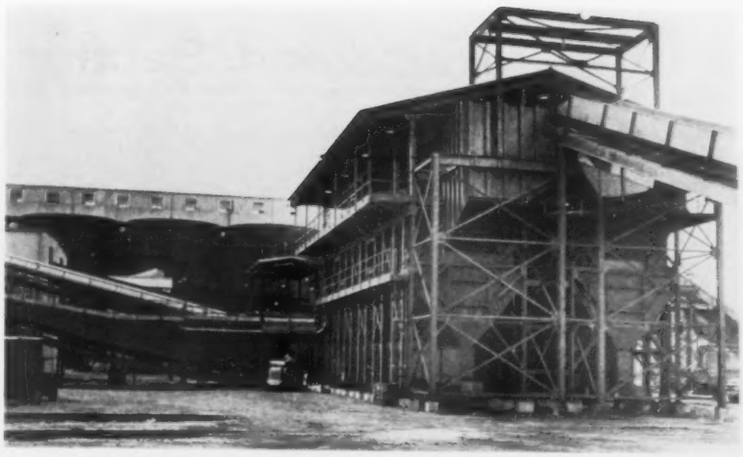
Skinned logs are flipped to a rubber conveyor which drops them into a chute with a steel divider. Logs are thus channeled by gravity to one of two new Murray 104 in., 10 knife chippers, equipped with card breakers and powered by 1,000 hp, 360 rpm direct-connected General Electric synchronous motors.

The Conveyor "Network" . . .

A network of covered conveyors carries chips to and from eight big Chicago Bridge & Iron steel chip bins, all of which have cone-shaped bottoms. They are 42 ft. across, 65 ft. high. Five of the eight are new.

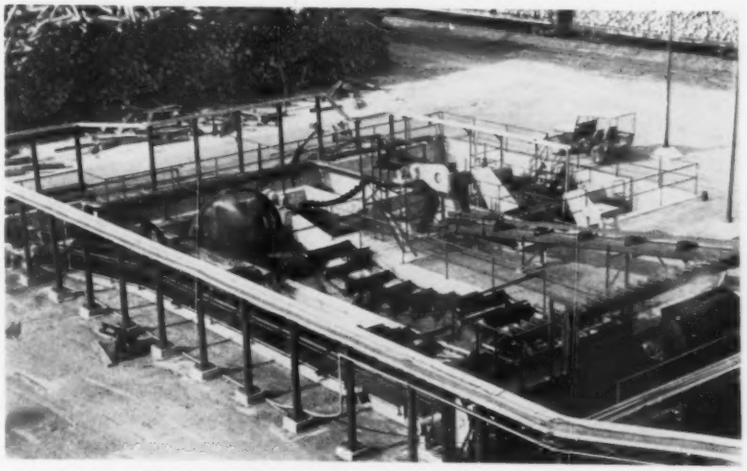
Two silos store hardwood and six are for pine. Syntron vibrators prevent clogging and provide a smooth flow from the silo cones through 17 ft. Link-Belt rotary chip feeders, each with 15,000 cfh capacity. A 48-in., 435 fpm belt conveyor carries the chips over a Merrick Weightometer with a magnetic pulley for metal detection and removal, weighing and cleaning chips before delivery to the cooking room. Aluminum covers for the chip conveyors were fabricated and constructed by the Rives Co.

Wood arriving in chip form is handled at a chip station consisting of a 15-ton Ederer overhead crane for lifting trailers and a Hewitt-Robbins car shakeout for dumping hopper cars. Chips are discharged into a live bottom pit and are carried to silos on Link-Belt conveyors. ●

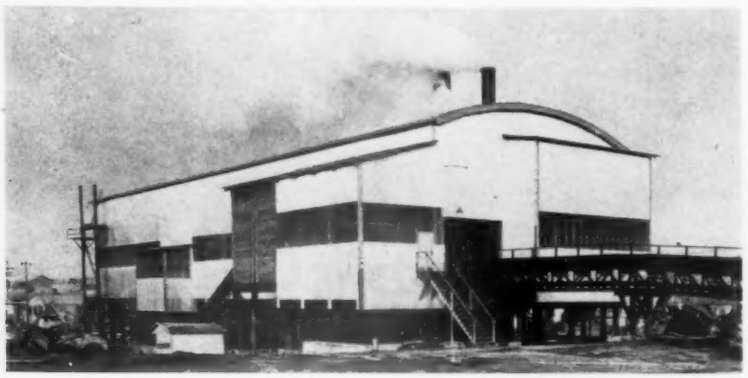


FMP BARKERS ARE 67½ FT. LONG. Conveyor discharges into chute with steel divider to channel logs to chippers.

POURING FROM BOTTOM OF HOPPER CAR, chips are shaken out by Hewitt- Robbins car shaker. At left is dump station for chip trailers. Live bottom moves chips to conveyor.



ROARING THROUGH TRAVELING SCREENS, flume water is cleaned by Link-Belt equipment during its course through flume system.



Assures a Dependable Source of Chips

This is Longview Fibre Co.'s new "million-dollar insurance policy."

It's a modern wood breakdown mill assuring the firm of a dependable, independent source of pulp chips.

Although this new production component can supply the entire wood needs of the 1,100-ton-per-day capacity Longview, Wash., kraft-NSSC plant, "it will not materially affect chip suppliers who have contracts with the firm," according to R. P. Wollenberg, vice president-operations.

Instead, the company continues its policy of maximum utilization of waste wood. Longview Fibre Co. was a pioneer in the use of residual forest products. Currently it receives wood chips from 45 sawmills and veneer mills located within a 300-mile radius of Longview. This supply accounts for 90% or more of the plant's requirements.

The breakdown mill can convert logs up to 6-ft. diameter into ⅝-in. chips at a rate of 80 units per hour. On 24-hour production it has capacity for processing 960,000 fbm (log scale) of low grade logs and thinnings into usable pulp chips—enough to fill 96 rail cars—and could supply Longfibre's entire chip needs on a continuing basis.

Besides, it provides a stabilizing, leveling-out factor beneficial to company and suppliers. Infrequent operation of the breakdown mill would provide the balance to maintain an adequate supply.

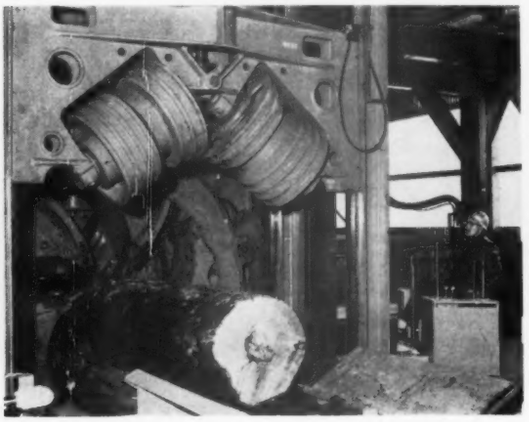
Lumber, veneer and plywood manufacturers have the assurance their chip sales will not be subject to intermittent "feast or famine" market. This factor is important to a plant owner trying to decide whether or not to install facilities for converting wastes into chips.

The breakdown mill, designed by Portland engineer Tom Miles and constructed by Howard S. Wright Co., sets at the edge of a 7½-acre blacktopped chip storage area of the 175-acre Longview plant site. Logs enter the structure via an inclined slip. The bark is removed by a 72-in. Nicholson Roto-Barker and the logs cut to lengths suitable for handling in this 32-ft. mill by 99-in. retractable, chain-saw type L-M deck saw equipped with hydraulic controls. The logs are converted into cants by a 10-ft. Sumner band headrig operated in conjunction with a steam engine driven riderless Sumner carriage. The sawyer controls carriage functions from his operating station, including activation of the carriage-mounted Oilgear hydraulic pre-set setworks.

Subsequent processing is provided by a Prescott 12 x 72-in. edger and Portland Iron Works 3-saw air-lift trimmer. The resultant cants are converted into chips by a 66-in. Norman fan-discharge chipper which blows them directly to outside storage. The chipper, with 16½ x 17⅛-in. spout, has feed facilities for handling cants or small logs up to 16-ft. long.

A Paulson overhead bridge crane serves the entire mill floor area as needed, including transporting saws to and from the filing room.

This chip supply "insurance" installation is designed for operation by a crew of four or five operators and was built with the anticipation it would seldom be used.



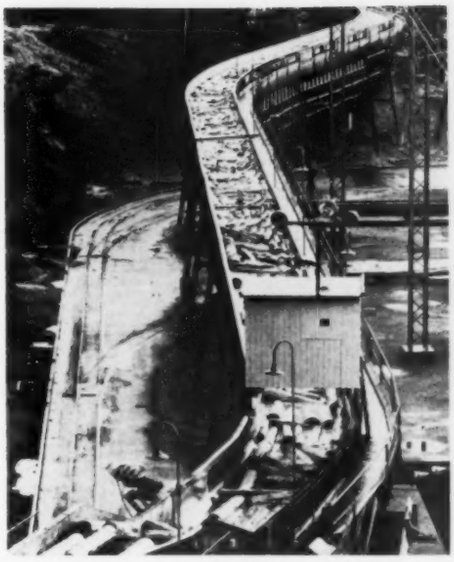
LOG EMERGING from Nicholson 72-in. Roto-Barker in Longview Fibre Co.'s new breakdown mill.

Big Air Spray Project Planned in Oregon

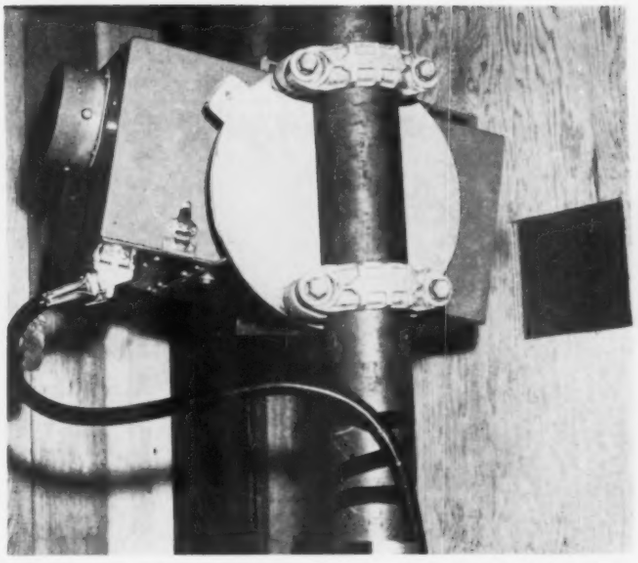
About 800,000 acres of commercially important forest land of northeastern Oregon infested with spruce budworm will be aerially sprayed this summer. Some 1.3 billion bd. ft. of timber valued at over $8 million on nearly 300,000 acres has heavy to moderate infestation. Lightly infested now but ultimately seriously threatened is another 2 billion ft. of timber valued at over $12 million on more than 400,000 acres. Counting growth losses which would take place without control work, an estimated additional $4.5 million or more of value is threatened, according to J. Herbert Stone, regional forester, U. S. Forest Service.

The control of spruce budworm epidemics has been remarkably satisfactory. In a 7-year period beginning in 1949, 3,840,000 acres of aerial spraying was carried out in Oregon and Washington—one of the most extensive such operations ever done anywhere, according to Mr. Stone. So successful was the control effort that insect kill amounted to 98% and only 10,000 acres had to be re-sprayed at that time.

The area recently scheduled for spraying represents a new outbreak of the insect on forested areas not previously sprayed.



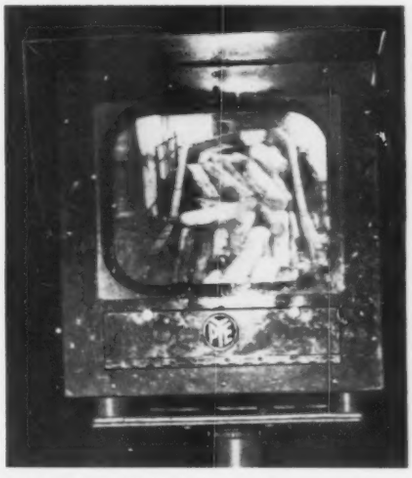
IN LITTLE HOUSE IS TV CAMERA, over flume. Picture is taken through opening.



CAMERA IN HOUSE aims at precise spot (in picture at left) where 64 in. long blocks leave flume.

Where Powell River Uses Industrial TV . . . . . .

GLANCING AT TV SCREEN across conveyor, operator sees if blocks are leaving flume properly.



WHAT HE SEES . . . a jam-up of wood outside building. He controls flow by button.

And This Operator Finds Picture Useful . . . . . .

• In Powell River Co's new giant woodroom, Powell River, B.C., what the TV camera sees is transmitted over a closed circuit to the television screen. By glancing at the screen, the block conveyor operator can tell if the blocks are being conveyed at a normal rate, or too fast, or if they are jamming.

If the blocks are coming in too fast, the operator is able to slow their movement on the spiked rolls and/or chain conveyors by push buttons. If the blocks are jamming on leaving the water, he stops the spike rolls and goes out to free them himself, or gets the help of the flume attendant if the latter happens to be nearby. An all-metal flume is 1,200 feet long.

Pye Canada supplied the TV and Barvic Engineering installed it.

Powell River engineers believe TV could be used with equal satisfaction in connection with chip storage and other mill operations where flow of material cannot be fully watched at any one point. •

NOTORIOUS 1946 LIBERTY MAGAZINE photo of Weyerhaeuser cutover land used by late Harold L. Ickes to illustrate his article "Our Vanishing Forests."

PROVING HE WAS A POOR PROPHET is this latest view of the same "doomed hillside." Limbs had to be removed from foreground trees to take this recent picture.

The Original—and the Latest Picture of Ickes' "Vanishing Forest"

That the Weyerhaeuser Timber Co. forest management techniques have "what it takes" to successfully grow repeated tree crops is indicated by this photo series showing views of Wolf Point, in Weyerhaeuser's St. Helens Tree Farm. Contrast the recent picture with the gloomy predictions nationally broadcast by the late Harold L. Ickes, former Secretary of the Interior, who used the cutover view to illustrate his "Our Vanishing Forests" thesis appearing in June 28, 1946 issue of *Liberty Magazine*. His prediction "backfired" because he failed to recognize the capabilities of managed forests—as many do not, even today; alert company personnel recognized the opportunity to refute the "incriminating" illustration. They have retaken photos of the area at frequent intervals. Secretary Ickes' attack thus has boomeranged into a remarkable pictorial record proving how effective reforestation is.

In the Northeast They Log with Big Trucks, Too

Typical of Northeast logging is this enormous Mack-Diesel equipped with detachable truck body and three pulpwood trailers in tandem, hauling over 50 cords of wood. It is operated on company roads in International Paper Co.'s Northern Woodlands div. forest holdings in Maine.

Florida, Georgia, Oregon Lead in Tree Farms

The industry-sponsored Tree Farm program of growing timber as a crop on taxpaying lands gained 3,399,700 acres in 1957, reaching a total of 44,947,917 acres in 45 states, reports C. A. Gillett, managing director, American Forest Products Industries, Inc. There are 11,163 certified tree farmers, including individuals and industries.

Florida, maintained leadership with 4,519,798 acres. Other leaders include Georgia, 3,909,193 acres; Oregon, 3,861,832 acres; Alabama, 3,832,694 acres; Washington, 3,775,916 acres; Texas, 3,630,695 acres and Arkansas, 3,422,667 acres.

Mississippi leads in number of Tree Farms with 1,177. Texas dedicated its 1,000th farm in November.

Oklahoma became the 45th Tree Farm state. Next spring, Delaware will become the 46th.

How to load 240* cords daily ..and save $1.00* per cord.. with TD-9 Skid-Grapple!

Exclusive load control is the big answer. Positive, all-weather, all-terrain load control all the way; which only an International Drott Skid-Grapple gives you!

You simply slide the Skid-Grapple's lower prongs under the woodpile. Apply exclusive triple-power, pry-action break-out and ground-level roll-back. The exclusive International Drott-designed, frame mounted skid-shoes on the ground provide the fixed fulcrum point.

Then you clamp onto the load securely with the exclusive top grab-arm. The third valve, standard equipment in International Drott design, provides the power source for complete top grab-arm control.

A cord at a time!

Even if the pulpwood is frozen down or mudded in, you get a big payload every time. The International Drott TD-9 pulpwood Skid-Grapple can pick up one cord of 8-foot pulpwood at a time—can load 240 cords, or more, daily, with only a one-man crew!

Separate top grab-arm control of every stick of wood lets you spot-place each grapple-full with ease, safety, and accuracy!

See how you save $1.00 per cord, or more, by streamlining pulpwood handling with an International Drott Skid-Grapple. Compare the stay-put advantages of this rig that has logger-designed strength—and is mounted on the basic, super-strong Skid-Shovel frame. Measure the performance-protection of exclusive, shock-swallowing Hydro-Spring! See your International Drott distributor for a Skid-Grapple demonstration!

*or more

The TD-9 Skid-Grapple can put it "up there," fast—as high as 10' 2"—for efficient loading or repiling. The Skid-Grapple interchanges with 4-In-1 or standard Skid-Shovel bucket to give you a capable road-building and material-handling unit!

Note that Skid-Grapple dumping resembles the way you ease down an armload of firewood ...There's an International Drott Skid-Grapple to give you world-beating pulpwood handling efficiency—whatever length it's cut!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL®
DROTT®

Make more money with Homelite

This man is making more money with a Homelite 6-22 chain saw. It cuts so fast that he can buck a 20-inch log in 18 seconds, fell trees up to seven feet in diameter. One of four Homelite models, the 6-22 is a good example of the plus value you get with Homelite:

you get speed and power thanks to a revolutionary, new intake valve, positive-action fuel pump and diaphragm carburetor. The 6-22 packs 6 full horsepower into only 22* pounds.

you get light weight that's easy to handle all day long with less fatigue in even the roughest terrain. Balanced design lets you cut easily and smoothly in any position, any type cut.

you get dependability with famous Homelite short-stroke, high-compression engine that stands up under the grind. Maintenance and down-time are lower, too. Homelite design increases engine life, cuts gas consumption.

you get fast service from the Homelite dealer near you. He's factory-trained and stocks spare parts for quick service.

Prove to yourself that Homelite chain saws cut 5% faster than any other saws in their horsepower class. Have a free demonstration today.

As Little as $4.87 Weekly
after small down payment

Homelite's quick, easy finance plan lets you buy now, pay in small weekly installments out of the money you earn with your new Homelite chain saw.

HOMELITE
A DIVISION OF TEXTRON INC.
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TRY ALL FOUR—CHOOSE THE ONE THAT SUITS YOU BEST

4 HORSEPOWER

Model 4-20, cuts trees up to 4 feet in diameter. 4 horsepower, 20* pounds. Rugged gear drive gives you consistent, dependable performance

6 HORSEPOWER

Model EZ-6, fastest-cutting direct drive chain saw. 6 horsepower, 19* pounds. Fells trees up to 5 feet in diameter. Powerful, light weight, precision-built.

6 HORSEPOWER

Model 6-22, most versatile gear-drive chain saw. 6 horsepower, 22* pounds. Cuts trees up to 7 feet in diameter, choice of straight blade and plunge cut bow, brush cutting and clearing attachments.

7 HORSEPOWER

Model 7-29, most powerful one-man chain saw you can own. 7 horsepower, 29* pounds, belt drive. Fells trees up to 10 feet in diameter.

*Less bar and chain.

Pulpwood Personals

Karl A. Swenning, Director of Timberlands for Scott . . .
Scott Paper Co. announces appointment of KARL A. SWENNING as director of timberlands, and JAMES G. ROWBURY as staff forester. Mr. Swenning has been active in forest management since his graduation from College of Forestry, Syracuse Univ., in 1920. He became associated with Scott through its Hollingsworth & Whitney Div., which he joined in 1943. Mr. Rowbury, who will serve as Mr. Swenning's assistant, is a graduate of schools of forestry at the Universities of California and Michigan. He has been chief forester Scott's west coast division.

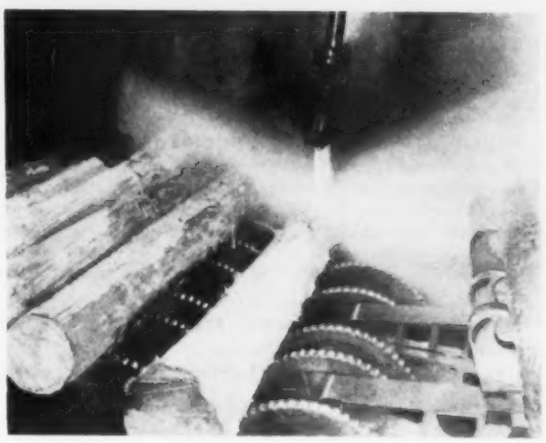
JOUKO T. KOLJONEN, public relations officer of the Central Assn. of Woodworking Industries, Helsinki, and PULP & PAPER's correspondent for Finland, recently completed a tour of the U.S. in which he studied public relations programs and forestry research. . . . ROBERT W. GUENTHER of West Virginia Pulp & Paper Co., Covington, Va., was promoted to forester-in-charge of southern wood procurement area for the Mechanicville, N.Y., plant. . . . LYNN SANDBERG is new mgr. of Celotex Corp.'s forestry div. at L'Anse, Mich. . . . OWEN W. BENTLEY was named mgr. of Columbia River wood supply for Crown Zellerbach Corp. . . .

JESS L. BEDWELL, chief of forest disease research at Pacific Northwest Forest & Range experiment Station, Portland, Ore., retires after 41 years government service and is succeeded by T. W. CHILDS. . . . ANDREW J. BAKER JR., formerly of U.S. Forest Products Laboratory, joins the experiment station at Portland, according to R. W. COWLIN, director. . . . PAUL F. EVANS, formerly of United Press bureau, joins American Forest Products Industries, Inc. as district mgr. at Tacoma. . . .

J. HERBERT STONE, regional forester of U.S. Forest Service, Portland, forecasts 11 percent increase in reforestation this year in Pacific Northwest region (from 35,671 to 40,000 acres) by planting and seeding. . . .

Weyerhaeuser logging-forestry personnel promotions: J. F. HOLLANDSWORTH, formerly woods supt. at Sutherlin, moves to Springfield as general logging supt., CLYDE KALAHAN, area supt. at Longview becomes logging supt. of Coos Bay branch replacing BILL GAINES who goes to Sutherlin as woods supt., JAMES CHURCH, branch forester at Vail-McDonald operation, to logging supt. at Camp McDonald and MALVIN ALEXANDER becomes branch forester. GEORGE STAEBLER appointed silviculturist and project leader for silviculture studies at forestry research center in Centralia. . . .

A. C. FOLEY of T. A. Foley Lumber Co., Paris, Ill., was named 1958 chairman of Illinois Forest Industries committee. . . . KARL A. SWENNING and JAMES G. ROWBURY were appointed to newly-created positions in Scott Paper Co.'s timberlands div., Chester, Pa. Mr. Swenning will be responsible for activities related to timber and wood supply for all Scott operations. Mr. Rowbury, who was chief forester for the West Coast div., was named staff forester. . . . The Forest History Foundation, St. Paul., Minn., has established a regional office in Syracuse, N. Y., headed by CHARLES D. BONSTED.



here's a BARKER with a bite!

Yes, here's Sumner's Bellingham-type Hydraulic BARKER that can "take on" all logs regardless of size or irregularity of the surfaces to be barked . . . including redwood, cedar and eucalypti. Its performance is proven! The piercing stream of the Sumner Bellingham-type Hydraulic BARKER strikes the log surface at 1300 to 1400 pounds per square inch. Made in 3 sizes for pulp mills . . . 2 sizes for sawmills.

Write, wire or phone SUMNER for information on how this Bellingham-type BARKER can go to work for you

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EVERETT, WASHINGTON
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FIREBRAKE®... *new chemical for fighting forest fires... now available!*

Better than water... better than any other chemical for retarding forest fires ...that's new FIREBRAKE! Never before has the forestry man had such an effective weapon for battling fires in timberlands and wild, remote areas. FIREBRAKE is immediately effective, and is ideally suitable for application by air tankers and ground spray units. FIREBRAKE adheres to brush and trees; confines fire to untreated areas. (See the photos of a demonstration below.)

1. Fuel for a test is shown being treated with new FIREBRAKE fire retardant to left of stake marker. It will be dry before testing begins. The other half of fuel pile will remain untreated.

2. Now you see fire blazing in the *untreated* fuel. A stiff wind is fanning the flames directly onto the portion treated with new FIREBRAKE fire retardant. This is a test of utmost severity which quickly determines whether protection is real.

3. FIREBRAKE wins victory over fire and intense heat. Charred remains of the untreated fuel stop abruptly at FIREBRAKE line. Photographic proof of the effective protection by FIREBRAKE.

Forest fire-fighting experts acclaim FIREBRAKE as the one best chemical for increasing the striking power of water and lengthening its effect. FIREBRAKE, thoroughly field-tested, has been used in as many crucial situations as possible, covering a wide variety of fuels and burning conditions. By such tests, foresters have conclusively proved sodium calcium borate the best available chemical material for control of fires in both light and heavy fuels. Best, because it remains effective for long periods, prevents rekindles, and permits pretreatment of fuels well in advance of fire. FIREBRAKE, sodium calcium borate, is quickly made into a slurry by mixing with water in the field. Slurry remains stable indefinitely. Applications are effective from either ground or air tankers. You can see convincing proof in a sound-color film, available on a loan basis. Write for information about FIREBRAKE today.*

**Published data also available:*

(A) Technical Paper No. 15 – March 15, 1957
California Forest & Range Experiment Station
Forest Service, U. S. Department of Agriculture

(B) FIREBRAKE Technical Bulletin FB-1
prepared by U.S. Borax & Chemical Corporation

United States Borax & Chemical Corporation

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PAYLOGGER

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Coos River Boom, Hauser, Ore., subsidiary of Menasha Plywood Corporation, purchased this "PAYLOGGER" after competitive demonstrations, to replace a dozer in their sawmill yard. Putting their yard handling work "on rubber" has given them a running start at cutting operating costs. They're saving $17.00 a day in sawteeth alone because the "PAYLOGGER" delivers cleaner logs to the saw. In addition, the higher travel and carry speeds enable it to do much more work than its predecessor.

This "PAYLOGGER" line is available in lifting capacities from 9,000 lbs. to 17,500 lbs.—carry capacities up to 13,000 lbs.—with a choice of Drott hydraulic grapples to suit your yard or mill . . . to handle big logs, small logs, lumber, pulpwood or slash. And they are designed and built to give the same high standards of performance and service as the famous "PAYLOADER" tractor-shovels.

Contact your Hough Distributor to get all the details on the advantages of the "PAYLOGGER" for your operations. Ask him about Hough Purchase and Lease Plans too.

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Send information on "PAYLOGGER" tractors to handle:

☐ logs (_____lb. loads), ☐ lumber,

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Title.....

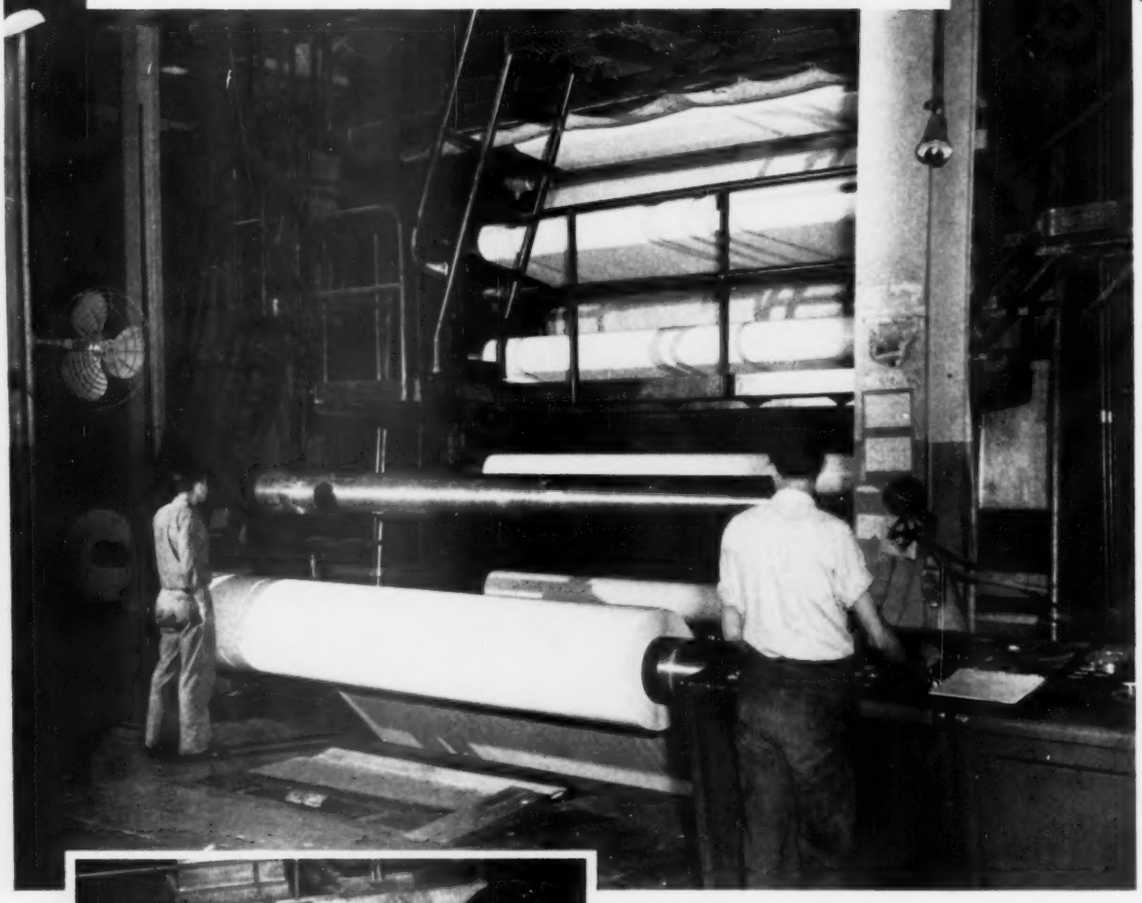
Company.....

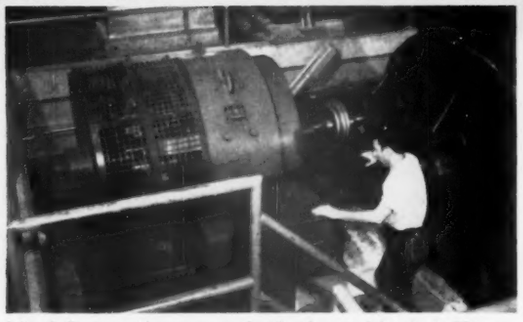
Street.....

City.....State.....

2-D-1

Reliance Drive at Mead





Mead Corporation supercalender located in their Kingsport, Tennessee plant. Inset shows the 500 hp. main drive motor, one of the three motors used in Reliance Supercalender Drives.

A Reliance Supercalender Drive keeps downtime for threading to a minimum for Mead by maintaining stable threading speeds. Threading-up is a fast and safe operation because the Reliance Drive accurately holds the 40 fpm. threading speed.

This accurate speed control is not limited to low speeds. The Reliance Supercalender Drive regulates speeds exactly through the entire speed range of the machine, all the way up to the 2000 fpm. top speed.

Other features of Reliance Supercalender Drives include break-away torque for smooth starts, precise tension control for good paper quality and good roll taper, wind and unwind from top or bottom of roll. These and many other features are explained in the Reliance Supercalender Drive Bulletin L-2507. Write for your copy today. L-1875

RELIANCE ELECTRIC AND ENGINEERING CO.

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Sales Offices and Distributors in principal cities

Strictly Personal

Midwest

Memo from DGC . . .

GLEN SUTTON, who is now general supt. of both paper mills for Sutherland Paper Co., Kalamazoo, has his offices in the main headquarters building of that company . . . PETER HARRIS, mid-school year graduate of Western Michigan University, has gone to work at Blandin Paper Co. He drove home from Kalamazoo after the midwinter TAPPI-Supts. meeting with his father, MACE HARRIS, manuf. v.p. of The Northwest Paper Co. . . .

RAY HILL has left Allied Paper Corp., Kalamazoo, and joined the staff of Riegel Carolina Corp. in Acme, N.C. . . . CLARENCE F. WATSON, former engineering dept. mgr., Nekoosa-Edwards Paper Co., has retired. He had important roles, was in charge of building artificial Nepco Lake, which provides the mills with process water, also building of the Nekoosa mill in 1927 and of its bleach plant in 1947 . . . with re-election of DWIGHT L. STOCKER, president of The KVP Co., as chairman of the advisory committee on paper technology at Western Michigan University, and L. D. NICHOLSON, gen. mgr. of W. C. Hamilton Co., Plainwell, as vice chairman, and DR. A. H. NADELMAN, head of the WMU paper technology dept., as secretary, these new members were elected to the committee: JOHN LEAN, vice president and gen. mgr., Rex Paper Co., Kalamazoo; FRANK ROBERTS, res. mgr., S. D. Warren Co., Muskegon; BERT H. COOPER, vice pres., Kalamazoo Paper Co.; NORMAN BARDEEN, vice pres., Lee Paper Co., and GEORGE JOHNSTON, JR., res. mgr., Continental Can Co., Three Rivers. Re-elected to the committee was WILLIAM A. KIRKPATRICK, vice pres., Allied Paper Corp. . . .

Hussey, St. Regis Pulp Sales

Tom Hussey teams up with Ralph Wehmhoff in handling St. Regis pulp sales and service in the Middle West and Lake States. The former was born in New York City, 28 years ago, and is a graduate of Georgetown U., Washington, D.C. He served in U.S. Navy in WW II, has been with St. Regis 3½ years, going through the training program at the Jacksonville, Fla., mill and working in manufacturing division. Wm. McNair, pulp sales mgr., accompanied him on some of his first calls.

CLARENCE L. BACHELDER, veteran of Hercules Powder Co., is retiring this year. To celebrate the event he plans to attend his 40th class reunion at Bowdoin and make a trip to Norway . . . CHARLES W. CASSELL, former engineer in Michigan and Washington state mills, has an office now as consulting engineer at 201 East Liberty St., Ann Arbor, Mich. His phone is Normandy 5-6121 . . .

KENNETH R. MULL, JOHN L. WILSON and GEORGE DLESK were elected company vice presidents of American Box Board and GORDON B. BONFIELD, ROBERT K. STOLZ and FREDERICK W. OLDENBURG were elected senior vice presidents. Mr. Bonfield, with the company since 1919, continues to direct the Filer City div. Mr. Stolz continues to head the Central div. Mr. Oldenburg will direct marketing. Mr. Mull is vice pres.-Central div. Mr. Wilson, vice pres.-marketing, will return to Grand Rapids. Mr. Dlesk is vice pres. and res. mgr.-Filer City div. . . .

RALPH C. KINZEL joined the research and development dept. at Rhinelander Paper Co., Rhinelander, Wis. Born in Fond du Lac, Mr. Kinzel graduated from Wisconsin State College in Oshkosh in 1957. WILLIAM A. MOGGIO, formerly chief chemist for East Texas Pulp and Paper Co., is now tech. asst. to the manager of Lake States Yeast Corp., a subsidiary of Rhinelander . . . RICHARD L. NAGLE was appointed to the new position of industrial marketing mgr. for A. E. Staley Mfg. Co., Decatur, Ill. . . .

WILLIAM E. BUCHANAN, pres. of Appleton Wire Works, Inc., Appleton, Wis., was elected to executive committee of American Can Co. He continues as a Canco director . . . ROBERT H. DAISLEY, vice pres.-admin., Eaton Mfg. Co., was elected to new position of vice pres.-planning. WILLIAM A. MATTIE, gen. mgr., heater div., succeeds him as vice pres.-admin. Mr. Daisley in 1922 joined Wilcox Motor Parts & Mfg. Co., predecessor of Eaton's Saginaw div. . . .

About 100 representatives of Ohio's pulp and paper industry attended a community relations seminar at Oxford, O., on Jan. 23, arranged by Miami U. at the industry's request. KARL BENDETSEN, vice pres. of Champion Paper & Fibre Co., was a speaker. DON DRISCOLL, pres. of Sorg Paper Co., and A. S. ANDERSON, dir. of industrial relations at Champion, C. H. CLAYPOOL, mill mgr. of Oxford-Miami Paper Co., West Carrollton, and State Senator WILLIAM BECKETT, pres. of Beckett Paper Co., were moderators . . .

C. E. Brandon Named Technical Director, Howard Paper Mills

LLOYD E. WILLIAMS was elected vice pres. of Pioneer Paper Stock Co., subsidiary of Container Corp. of America . . .

JOHN L. VANNORT of Reliance Electric and Engineering Co. was named midwest regional sales mgr. covering Rochester, Cleveland, Pittsburgh and Cincinnati districts and R. O. HERBIG, central west regional sales mgr., covers Chicago and Detroit districts . . . H. MAX HUGHSON joined Biron div. of Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., as tech. supervisor . . . Appleton Coated Paper Co., Appleton, Wis., named EUGENE S. COLVING director, replacing M. D. WEYENBERG, and WILLIAM SIEKMAN and FRED T. HEINRITZ secy. and asst. secy., respectively . . .

Officers of Wisconsin Paper Group for 1958 are: Pres. JOHN H. WILTERDING, vice pres. of George Banta Co.; Vice Pres. THOMAS LEECH, pres. of Whiting-Plover Paper Co.; Secy.-Treas. LEO O. SCHUBART, pres. of Neenah Paper Co.; and Exec. Secy. IRWIN PEARSON . . . CHARLIE ROOT joins Robert Gair div. of Continental Can Co. in newly organized Fibre Drum section of its research group, terminating 23 years of employment at the Institute of Paper Chemistry, Appleton, Wis. Another former member of the Institute staff, HOWARD BAUMGARTEN, and wife are parents of a son, JONATHON, 6 lb.-2 oz., born on Nov. 18. Mr. Baumgarten is now with Gardner Board & Carton Co., Middletown, O. . . .

New mgr. of Detroit district sales office of The Babcock & Wilcox Co.'s boiler div. is WILLIAM W. GILBERT, succeeding ARTHUR R. WAUGAMAN who retired after

Strictly Personal

22 years in the Detroit district . . . PAUL L. SUTER transferred to St. Regis Paper Co.'s Sartell, Minn., mill where he is in direct charge of power facilities. He was formerly asst. to res. mgr. at the Deferiet, N.Y., mill . . . FRANK R. PLETZ was named asst. application engineer in the pulp, paper and general processes section of Allis-Chalmers Mfg. Co.'s electrical application dept. . . . ROBERT M. COOK was appointed vice pres. and gen. mgr. of Ross Midwest Fulton Corp., Dayton, O., a subsidiary of J. O. Ross Engineering div. Midland-Ross Corp. . . .

ROBERT J. WEINBAUER has been appointed assistant to the director, book paper manufacture (WILLIAM J. FOOTE), Consolidated Water Power & Paper Co. Mr. Weinbauer joined the company in 1937. CHARLES STOLP, JR., has been named an assistant to the production manager, Biron division (ROBERT MADER).

Southern . . .

Memo from WFD . . .

The Southern Exposure: WILLIS PENFIELD, veteran vice president of Gulf States Paper Corp. and a member of its staff since the Tuscaloosa mill was built in 1936, had the unique experience of retiring for the SECOND time recently. Mr. Penfield, who began his career with E-Z Opener Bag Co., Gulf States' predecessor, as a floor sweeper in 1912, retired previously but was called back to head the marketing of pulp from the new Demopolis mill in 1956. In 1946 he took over the direction of extensive post war expansion at the mill. . . . CHARLES H. SEWELL, formerly with Atlanta's famed Rich's dept. store, has taken over as personnel procurement director for Gulf States. ARDEN WALKER is new training director. . . .

George Clarke, New Vice Pres., Gen. Mgr., Southland Paper

. . . replaced the late W. L. MCHALE. Mr. Clarke was production mgr. of Coosa River Newsprint Co. and helped build that mill, as he did Kimberly-Clark's kraft mill at Terrace Bay, Ont. He was with International Paper at Springhill, La., before WW II and most recently was in charge of groundwood at IP's Mobile div.

Industry lessened by the deaths of OSCAR BECK, Cone dept. supervisor at Sonoco Products Co. and J. C. GARNTO, of Brunswick P&P's woods div., killed in a traffic accident. . . .

DONALD A. DRAKE has been promoted to Southwestern dist. mgr. of Tube Turns Plastics, Inc. at the firm's newly established full-time district sales office in Houston, Tex., reflecting the area's increasing industrial use of polyvinyl chloride piping. . . . NOBLE D. SMITHSON, JR., is new res. mgr. of I.P.'s Single Service div. Pura-Pak plant in Atlanta, Ga., replacing CHARLES WALDROP, who resigned. . . . Congratulations to Brunswick Pulp & Paper for its perfect safety record in 1957—not a single lost time accident.

JAMES R. FRENCH, Cornell University graduate, has joined the Crossett Co. as an executive trainee, is currently working in the personnel division. . . . RALPH PAULSON, 21-year veteran with Rayonier, Inc., has been transferred from its Shelton div. to Jesup where he will serve as safety supervisor. . . . Rayonier's magazine, Ray-O-Sun, says inflation is "being broke with a lot of money in your pocket."

LA GRANDE MARTIN, HARVEY HIGGINS, EDDIE C. GATHERS and SOL MURPHY have been welcomed into the Albemarle Paper Mfg. Co.'s "Old Timers Club"—which commemorates 25 years of service with the company. They received gold wrist watches. The company now has 66 members in this club and only six of these have retired so far. . . . All the rocket news in the papers lately apparently prompted this bit of verse, courtesy Crossett Co.'s "Forest Echoes":

"Looming just ahead is
This parental plight:
"Dad, can I use the
Rocket ship tonight?"

ROBERT (RED) JORDAN, machine room supt. at I.P.'s Natchez mill, has retired rounding out 37-and-a-half years with the company. He began his career at the Louisiana Mill in Bastrop, also saw duty at Bastrop and Springhill, recalled recently that his starting pay was only $7.50 a day. . . . GORDON SINGLETARY, Brunswick P&P asst. gen. mgr., was recently appointed to a five-year term on the Glynn County, Ga., board of education . . . and personnel mgr. A. H. OWENS of Brunswick recently was installed as president of the Okefenokee Area Boy Scouts Council.

G.I. Burner Is Chairman . . .

Mr. BURNER, of Rust Engineering Co., Pittsburgh, Pa., heads the AIEE Pulp and Paper Industry Subcommittee which is planning the meeting in Raleigh. Other leaders are C. H. HUDSON, General Electric, Atlanta, who is vice chairman and directing arrangements, and E. K. MURPHY, Rayonier electrical engineer, Jesup, Ga., who is secretary.

SYDNEY FERGUSON, director and former chairman of the Mead Corp., spoke at the Atlanta Freight Bureau's annual meeting in Feb. . . . G. W. GUTCHES was appointed gen. mgr. of Container Corp. of America's folding carton plant at Fort Worth, Tex., succeeding J. R. NEIL who retired Jan. 1 after 29 years with the company. C. ROSS HUNSICKER, advisor on building and equipment of Container Corp.'s new mill at Brewton, Ala., retired after 24 years. . . . Dow Chemical Co. opened new sales office in the Dallas Federal Bldg., 1505 Elm St., Dallas, Tex., with DONALD P. CAMP, former head of chemicals sales in the firm's Houston office, as mgr. . . . SYDNEY K. BRADLEY was elected pres. of The Paper Bag Institute Inc. and GEORGE S. RUNYAN was elected vice. pres. Mr. Bradley is vice. pres. of Union Bag-Camp Paper Corp. and Mr. Runyan is vice pres. of Crown Zellerbach Corp. . . . WILLIAM T. NYE was promoted to asst. director of research for Gaylord Container Corp., div. of CZ.

Northeast . . .

Memo from MRC . . .

One of our friends in a Holyoke paper mill sends in this recipe to improve the flavor of salt—take a pinch and spread it over a thick juicy sirloin. We'll try this one. . . .

The very best of birthday wishes to the folks at Sandy Hill Iron and Brass Works who celebrate their 100th birthday this year . . . and we hear that the Bulkley, Dunton organization is 125 years young this year, too.

WALTER W. HAMPTON, formerly gen. supt., Manistique Pulp & Paper Co., is now paper mill super at the St. Lawrence Paper Corp., Norfolk, N.Y. . . . WILLIAM H. CADDOO steps up in Continental Can Co. as gen. mgr. of the Gair Boxboard

and Folding Carton div., replacing NORMAN F. GREENWAY, new exec v.p. . . . EDWARD T. JONES has retired from Chas. T. Main, Inc. as principal asst. pulp and paper mill engineering dept. He's spent more than 39 years in the industry with such companies as Stevens & Thompson, Brown Co., N. W. Walley & Sons, Ltd. (importers of pulpwood) . . .

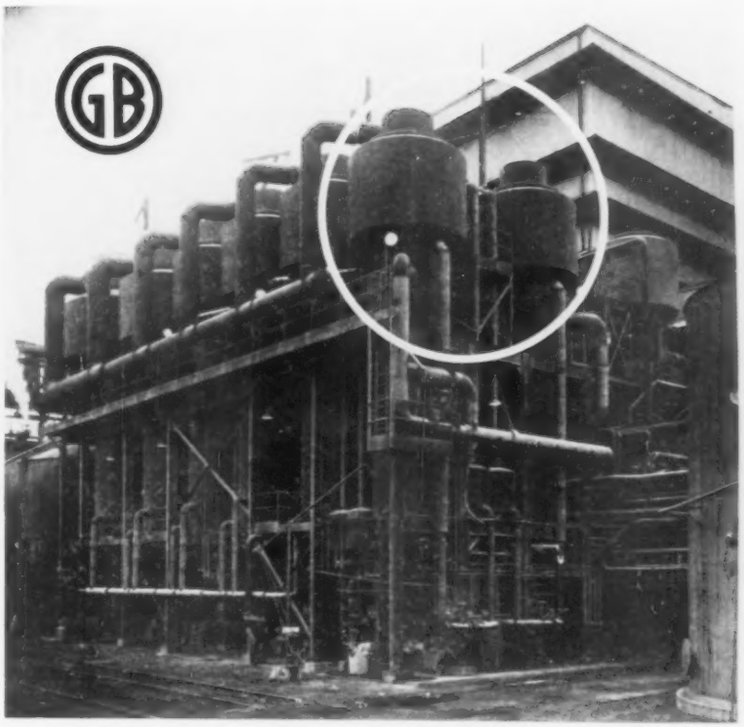
We recently bumped into a familiar face at the spanking new Eden, N.J. mill of Whippany Paperboard—WAYNE DAVIS, vice-pres., felt sales of Albany Felt Co. He was carrying an also-spanking-new traveling bag—gift from his sales staff in honor of his 40th year with Albany. He joined in 1918 as sales correspondent, became sales mgr. in 1945 and was elected asst. vice pres. in 1947 and became a full-fledged v.p. in 1955. Congrats, Wayne. . . .

At St. Regis' Bucksport, Maine mill HUBERT D-AUVIGNY, staff engineer for Papeteries de France, is studying machine coating of magazine papers. A new paper machine with a coater similar to one in operation at Bucksport is being installed in one of the Grenoble mills. . . . From Jax, Fla., to Cos Cob, Conn., is story of MILTON ROBERTS who now works with DR. KEN ARNOLD as manager of research projects in N.Y.C. The Roberts are now renting at Cos Cob. . . . GERALD S. GILLIGAN has joined St. Regis as market analyst and economist. He was formerly senior economist and head of the Forest Products Economics at Stanford Research Institute, was project leader of their report for Weyerhaeuser Timber Co., America's Demand for Wood 1929-1975. ROSWELL P. FALLON, transferred to the central tech. dept., is tech. service engineer working out of the New York office. . . .

RAY A. THOMPSON, sales engineer, Samuel M. Langston Co., has resigned to head up management of a private enterprise in Wilmington, Del., left vacant by a death in his family. He had been with Langston since 1947. . . . FRANK E. WANTZ is now gen. mgr. of Container

N. G. Osborne, Jr., Sales Mgr., Cornell Paperboard Container Div.

. . . was formerly asst. sales mgr. Mr. Osborne has been with Cornell Paperboard Products Co.'s Container div., Milwaukee, Wis., for eleven years.



St Regis Paper Expands with G-B Evaporators

Circled above are two new sextuple effect evaporators installed at the Jacksonville, Florida mill of St. Regis Paper Company. Each is capable of concentrating almost 400,000 pounds per hour of weak liquor to 50% solids. The new evaporators are installed alongside the original sextuple effect G-B evaporators installed in 1951. St. Regis again chose G-B evaporators for its giant expansion program . . . another example of customer satisfaction which has projected G-B to the front in the process equipment field.

More complete information available upon request.

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including HEAVY CASTINGS

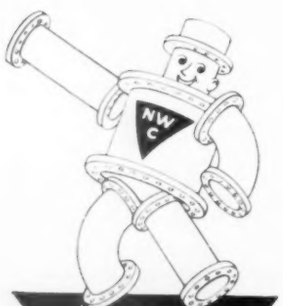
Strictly Personal

Corp. of America's paperboard mill at Wilmington, Del. . . . WINTHROP ENDICOTT has been upped to manager of merchant and industrial sales for Riegel Paper Corp. WILLIAM RIEGEL succeeds him as product mgr., packaging material sales. . . .

CHARLES G. BROUGH has joined Champion-International Co. as project engineer to develop new manufacturing methods. . . . He has a b.s. from Harvard in engineering and applied physics. . . . J. RAY COULTER is now mgr. of manufacturing, American Cyanamid's industrial chemicals div. . . . ELMER C. CARLING, sales mgr. of Cyanamid's pigments div., died January 19th. . . . WILLIAM D. GRAFTON steps up as asst. to sales mgr. for dyes, Organic Chemicals Div., will live with his wife and two youngsters in Bound Brook vicinity. . . . BEN F. MELUCCI is now commercial development mgr. of the industrial chemicals div. . . .

KENNETH G. HOLDOM now heads up J. F. Pritchard & Co's. eastern district as manager with offices in New York City.

CUSTOM FABRICATIONS



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Abrams Advisor to TAPPI

ALLEN ABRAMS, retired vice president in charge of research, Marathon Corp., has taken on new duties as chairman of the administration committee of TAPPI. This is a salaried advisory post, created a year ago and first held by VANCE EDWARDES. Mr. Abrams is also expected to hold the position for one year. He will continue his activities as consultant and advisor on industrial research. He has been associated recently on such a project with Arthur D. Little Co., Boston. Mr. Abrams resides at 815 Tenth St., Wausau, Wis.

RICHARD A. BENNETT has been promoted from design engineer to chief mechanical research and development engineer at Milton Roy Co. . . .

DR. FRITZ ROSENTHAL, director of product development, joins HORACE SPENCER in directing the research activities of Knowlton Bros., Inc., Watertown, N.Y. . . . DR. J. W. LUTHY, named director of applications for the dyestuff and chemical divs of Sandoz, Inc., will be responsible for all research and development. He will be located at Sandoz's New York offices at 61 Van Dam St. . . . E. LEONARD BORG is new mgr. of synthetic rubber development for the Naugatuck chemical div., U. S. Rubber Co. . . . DR. ALLEN ABRAMS, paper industry consultant, is chairman of the TAPPI administrative committee for 1958. . . . J. W. ELLMAKER was appointed home office mgr. in Muncy, Pa., for Sprout, Waldron & Co., Inc.'s north central district. . . .

R. BURKE MORDEN, pres. of Morden Machines Co., Portland, Ore., traveled to New York for Paper Week via the University of Maine where he gave a repeat of the "Stock Preparation Equipment" lecture originally given in 1953. . . . JOHN B. LYNCH has joined Bulkley Dunton & Co. and will handle publication and converter business. He continues his interest in Sherbrook Pulp and Paper Industries, of which he is a director. . . . WILLIAM J. ALFORD was elected chairman of Continental Paper Co., Ridgefield Park, N.J. C. L. VON EGLOFFSTEIN succeeds him as president. . . . Ebasco Services Inc. announces the appointments of F. A. RITCHINGS as asst. consulting mechanical engineer and E. C. YAW as chief mechanical design engineer. . . . Room 226, Fitch Bldg., 315 Alexander St., Rochester 4, N.Y. is headquarters of Oakite Products, Inc.'s new upper New York State div.

SAPI Officers Elected

Officers of the Salesmen's Assn. of the Paper Industry for 1958, elected at Paper Week, are: Chairman EUGENE O. HANSON (Brown Co.); WILLIAM R. COLLOPY (Champion Paper & Fibre Co.) San Francisco; JOHN R. DIGGS (Mosinee Paper Mills Co.) Chicago; E. J. EDWARDS (Howard Paper Mills Co.) Chicago; JOHN G. GLOVER (Tileston & Hollingsworth Co.) Boston; LARRENCE E. GRAHAM (International Paper Co.) New York; RICHARD B. LOMBARD (S. D. Warren Co.) Boston; GEORGE J. SMART (Hammermill Paper Co.) New York; BYRON H. SPIELMAN (Hamilton Paper Co.) Los Angeles.

Macdonald in Hospital

Ronald G. Macdonald, veteran secretary-treasurer of TAPPI, was recovering in Robert Long Hospital in late January and early February from a serious leg ailment, resulting from an injury accident in New York. Associates reported he was coming along nicely.

Pacific Coast

Memo from LHB . . .

You probably read about it in the papers, but chances are you didn't know that the "National Polio Mother of the Year" for 1958 is the wife of an engineer at Puget Sound Pulp & Timber Co.—MRS. DEWEY HUSTON. She went to New York for the presentation of the award in the Waldorf-Astoria . . .

JAMES NASH, supt. of a western pulp mill prior to joining Bauer Bros. Co. two years ago at Springfield, O. as erection engineer, transfers to Mt. Vernon, Wash. as erection and service representative assisting KENNETH WYLIE, Bauer's West

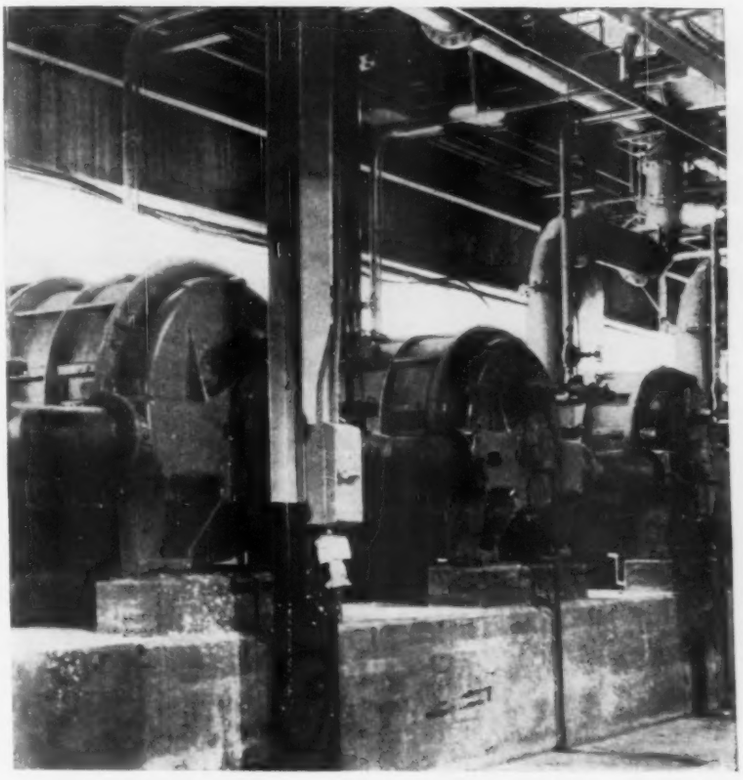
Meginniss ..... McDonald

Top Men in Calif. Club

RICHARD A. MCDONALD, JR., (is new) president of the Paper Mill Men's Club of Southern California. He is also president of Paper Products, Inc., Long Beach, Calif., converters of Red Top paper napkins, shelf, drawer and other consumer papers.

Other newly elected officers: vice-president, C. A. MEGINNISS, of Star Paper, Port Hueneme, Calif.; secretary, HARRY W. GRANGER, Oregon Pulp and Paper Co.; treasurer, JACK COURTNEY, Crown Zellerbach.

What, actually, do Vacuum Pumps on paper machines handle?



Paper mill engineers know that it is actually a mixture of air and water vapor, but the custom of rating vacuum pumps in terms of air capacity alone causes this important fact to be frequently overlooked.

The presence of this water vapor causes a considerable reduction of the effective air handling capacity of any vacuum pump except the Nash. In the Nash Vacuum Pump the bulk of this water vapor is effectively condensed, due to the Nash operating principle. The air handling capacity of the Nash is therefore not reduced.

That is one of the reasons why Nash Vacuum Pumps are standard in over a thousand leading Paper Mills.

NASH ENGINEERING COMPANY

443 WILSON ROAD, SO. NORWALK, CONN.

PULP & PAPER

Strictly Personal

Coast district manager . . . F. A. NORDSTROM, director, announces two appointments in creative design div. of Fibreboard Paper Products—G. W. HOLT, formerly mgr.—marketing analysis, becomes mgr.—market development and W. A. WIEDERSHEIM, industrial applications engineer, succeeds him as market analysis mgr. . . .

DR. ROBERT BROWN, vice pres., Puget Sound Pulp & Timber Co., who recently returned from around-the-world tour, found that sitting on the floor (on a cushion) to partake of Japanese meals makes for considerable stiffness . . . Two sons of ELVER GANSLER, distillation operator of Puget Sound Pulp's alcohol plant, made honor roll last quarter at U. of Wash. where both study chemical engineering . . .

JAMES E. MCCOURT, tech. asst. to paper mill supt. (wrap) at CZ Camas, promoted to machine room shift foreman (wrap). He is son of MICKEY MCCOURT, Consolidated Water Power & Paper Co. executive . . . RAYMOND C. BRUGEON, West Coast Traffic mgr. of St. Regis Paper Co., Tacoma, receives service pin in recognition of 30 years service with the company . . . IRV WILLIAMS, branch mgr. at St. Regis Paper's San Leandro plant, has been elected a director of San Leandro Manufacturers' Assn. . . . E. E. BURROUGHS II, West Coast engineer for St. Regis Paper Co., transfers from San Leandro to the East Providence, R.I., machine shop . . . E. J. HAYES, Tacoma office mgr. St. Regis Paper, receives 45-year service emblem . . .

S. P. "TED" STRAYER, asst. chief chemist at St. Regis Paper at Tacoma, promoted to asst. to gen. mill supt. S. K. PRATT; ROBERT LYNCH, formerly asst. chief chemist of paper mill, becomes asst. chief chemist for both pulp and paper mill . . . KENNETH H. THOMAS advanced to senior buyer in purchasing dept. of Scott Paper at Everett . . .

PAUL F. MIDDLEBROOK, of CZ industrial relations dept. in San Francisco since 1942 and previous to that asst. res. mgr. at Camas and res. mgr. at Lebanon, died Jan. 2 following extended illness . . . R. D. WADDELL, technical supervisor CZ Lebanon, died Jan. 5 . . .

Mispley Promoted by CZ

ROBERT G. MISPLEY, supervisor of product quality and development at Crown Zellerbach's Camas mill, was being promoted to management dept., Crown Z headquarters in San Francisco Mar. 1.

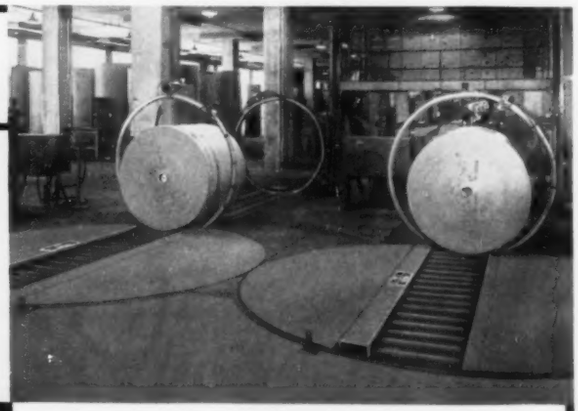
Heads Registration Committee

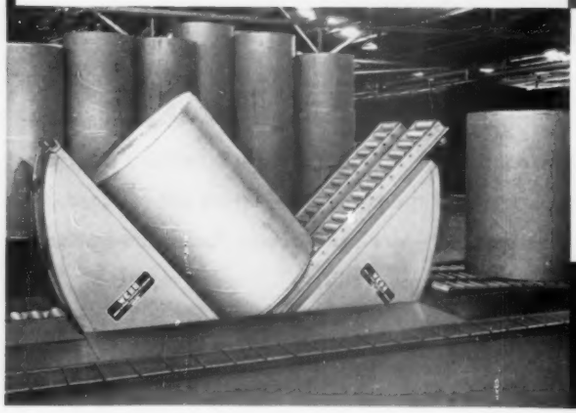
WAYNE MITCHELL, Portland district sales engineer for Link-Belt Co., heads registration committee of Thirteenth TAPPI Engineering Conference in Portland, Ore. July 28-Aug. 1.

WEBB

AUTOMATIC ROLL HANDLING

THROUGH:
Breaker Table
Lowering
Banding
Weighing
Dispatching
Turning
Upending





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Overhead Conveyors
Towing Conveyors
Turntables
Upenders
Control Systems

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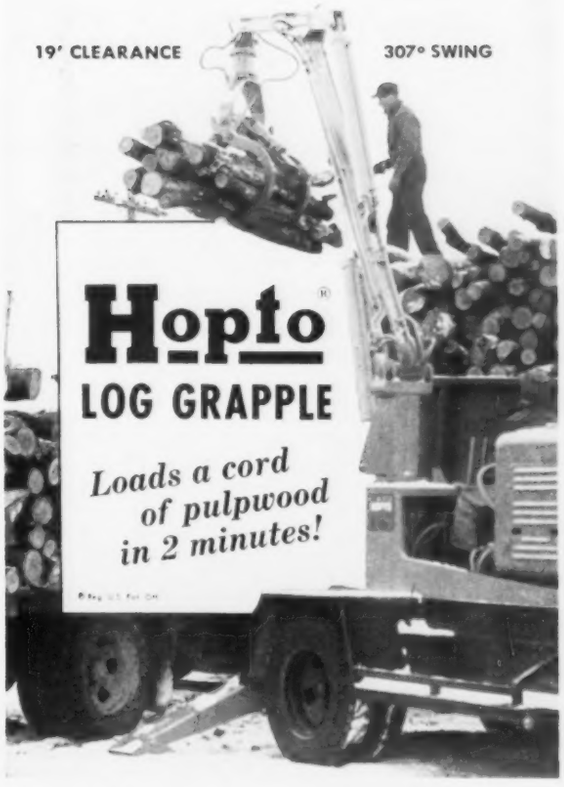
OTHER PLANTS: DETROIT • LOS ANGELES • HAMILTON, ONTARIO



Pulpwood handling is fast, easy, *low cost* with Hopto's 19' clearance, 307° uninterrupted swing and fatigue-free operation! Convenient, easily-actuated controls give Hopto a 20 second loading cycle. Hydraulic cushioning makes every motion *safe, sure, exact!* Hydraulic stabilizers or outriggers are independently controlled from operator's position. Set-up time is just 30 seconds!

GRAPPLE ROTOR LINES UP THE LOAD WHILE BOOM IS SWINGING

Heavy-duty, large capacity hydraulic system makes possible a combination of movements. Boom swing, its elevation, the rotation of grapple, and opening of grapple jaws are simply and easily handled at the same time! Hopto is ready for another load at the end of its fast, safe, cushioned swing.

Get all the facts and you'll get Hopto!

Hopto®

WARNER & SWASEY
BADGER DIVISION WINONA, MINNESOTA

Please send me all the facts on the Hopto 307 Log Grapple

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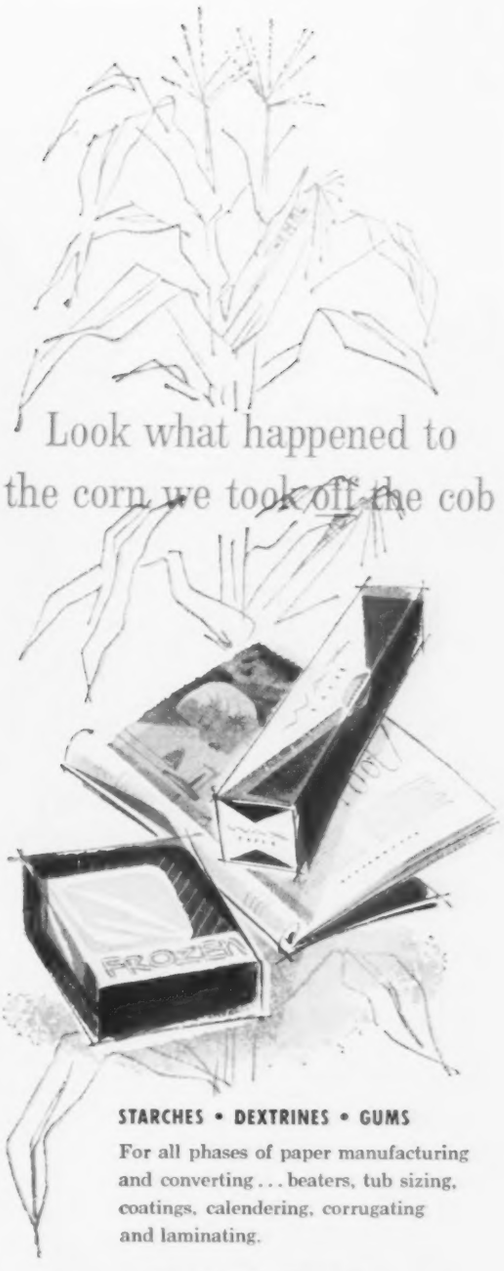
ADDRESS_____

CITY_____ STATE OR PROVINCE_____



Look what happened to the corn we took off the cob

STARCHES • DEXTRINES • GUMS

For all phases of paper manufacturing and converting... beaters, tub sizing, coatings, calendering, corrugating and laminating.

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COLUMBUS, GA., 2319 Hamilton Rd. ST. LOUIS, MO., 721 Pestalozzi St.
GREENVILLE, S. C., 129 Cureton LaGRANGE, GA., 506 Springdale Dr.
PHILADELPHIA, PA., Bourse Bldg. CHICAGO, ILL., 750 S. Clinton
NEW ORLEANS, LA., 314 Girod St.

PULP & PAPER

Strictly Personal

MARK LOWRY became groundwood mill supt. at CZ West Linn Feb. 1 when ART PALMER retired; HORACE BELL moved up succeeding Mr. Lowry as groundwood mill shift foreman . . . CLAUDIA MAY JACOBY, daughter of WALTER C. JACOBY, mgr. of pulp production at CZ St. Helens, and wife JEANNETTE, was married Feb. 15 to DONALD C. HEACOCK . . . PETE TARANOFF, asst. paper mill supt. CZ St. Helens, has been elected mayor of Columbia City for the third time . . .

CLARENCE CEA, four-diamond machine tender at Simpson Paper Co., Everett, retires after 48 years continuous service . . . JOSEPH J. MURPHY, supervisor of converting dept. at Simpson Paper, completed 25 yrs. service Feb. 6 and thus became first new member this year to join Simpson's Old Timers Club . . . W. S. HOWARD, asst. office mgr. CZ Port Angeles, promoted to office mgr. and DEWAYNE J. MEYER succeeds him as asst. office mgr. . . . ALLEN K. HALLER, Orzan production foreman, promoted to acting technical supervisor at CZ Lebanon . . . AUGUST C. MONCINI advances from steam & power supt. to plant engr. at CZ Lebanon . . .

ARNOLD O. BECKMAN, pres., Beckman Instruments, Inc., Fullerton, Calif., will speak at the Scientific Apparatus Makers Assn. annual meeting in Palm Springs Apr. 20-24 . . .

DONALD L. JOHNSON joined Witco Chemical Co.'s staff as sales rep. at its San Francisco office at 80 Stonestown . . . As branch mgr. of West Coast sales office of General Dyestuff Co. WALTER R. BRANDT will be in charge of sales for the entire West Coast. Headquarters will be at San Francisco . . . RICHARD DIETRICK of the Institute of Paper Chemistry, Appleton, Wis., left for Everett, Wash., for a term of mill work with Scott Paper Co. . . . OSCAR E. "ED" LARSON, mgr. of western sales region for John W. Bolton & Sons, Inc. and Emerson Mfg. Co., div., recently celebrated his 75th birthday. He and MRS. LARSON live at 166 Lake Ave., Piedmont, Calif. . . . EDWARD BAILEY, new regional sales mgr., International Paper Co., will head a West Coast sales office recently opened in the Russ Bldg., San Francisco 4.

Executive offices of Oregon Pulp & Paper Co. and its affiliates, Columbia River Paper Mills and Columbia River Paper Co., are to move from Portland to Salem, Ore., according to W. F. WEHRLY, comptroller. Oregon Pulp recently completed purchase of a lot there on which the new headquarters building is to be built.

CHIP STORAGE

A Rader high pressure pneumatic conveying system at the new Georgia Pacific Paper Company mill at Toledo, Oregon conveys more than 2 tons of pulp chips per minute from a rail car unloading pit 550 feet to an outside storage pile. Pipe can be laid out over the 100 foot high pile, allowing the Rader system to spread chips over the entire storage area. This area supplies raw material for the largest paper machine on the West Coast.

Rader systems, which handle more wood chips than any other type of pneumatic conveyor in the world, perform many difficult conveying jobs in pulp mills: build open storage piles with segregated species, reclaim from open storage, blow to several discharge points through use of diversion valves, increase digester yield by compacting more chips in each charge.

Rader solves virtually any bulk material handling problem. Write today for complete information.

RADER PNEUMATICS, INC.

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Canada

Memo from CLS . . .

J. NEWELL STEPHENSON has completed his 41st year as editor, and, later, editor-in-chief of the Pulp & Paper Magazine of Canada . . . a colorful painting of the St. Anne de Beaupre mill was an eye-stopping attraction in the Dominion Engineering-Dominion Bridge hospitality rooms at the Canadian convention. JOHN WALSH, sales promotion mgr. Dominion Bridge Co., painted it. Another one who manipulates an artistic brush is FRANK MITCHELL, manager of the Canadian P & P Assn. . . . FRED L. ALLEN, executive v.p. of Canadian International Paper Co. and board chairman of the Pulp & Paper Research Institute of Canada, left after the meetings with his wife, Phyllis, for a Hollywood, Fla., vacation . . . coming a long way to the Montreal meeting for Stebbins were ALBERT S. QUINN, president of the Seattle company, and LLOYD PUBLICOVER, who is now manager in Vancouver, B.C., for Stebbins . . . JAMES A. STENSTROM, now gen. sales mgr. of Canadian Chemicals Ltd., met

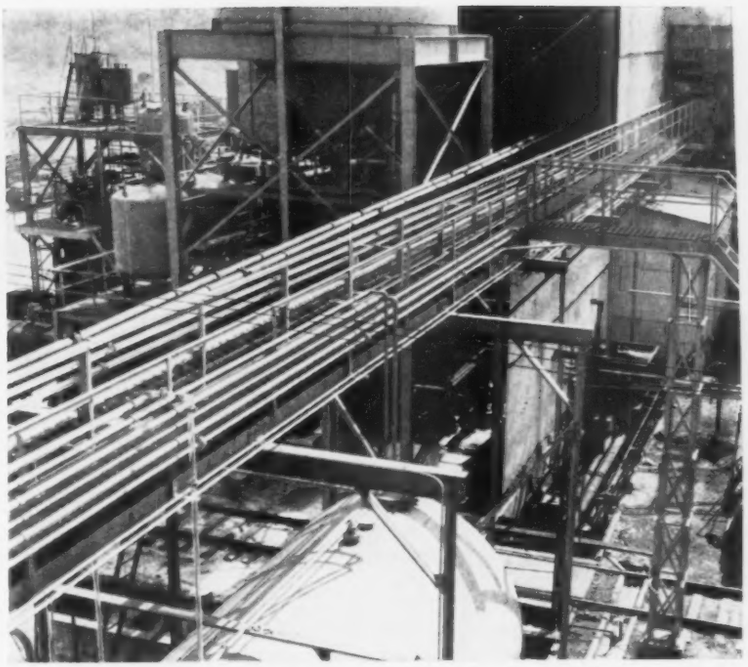
J. V. Clyne Becomes Chairman, MacMillan & Bloedel, Ltd. . .
. . . and has resigned from the supreme court of British Columbia. Mr. Clyne was formerly chairman of the National Harbors Board of Canada. He succeeds B. M. HOFFMEISTER, who resigned from the M&B chairmanship recently.

old associates with Canadian Ingersoll Rand. He has three sons, the oldest David, named for a grandfather who was prominent in the Coast industry, "is already making radio sets," reported Jim . . .

A broken leg didn't keep MRS. M. W. (BERYL) DAVIS, wife of "STUBBY" DAVIS, president of Sherbrooke Machineries Ltd., from taking part in convention events . . . GUS HELLSTROM of Paper Mill Equipment Ltd. and Paper Mill Machinery Ltd., was taking it easy, as his two sons "run the show" in their business . . .

ANTHONY BENN, director, and MAURICE COSTIN, deputy director of Price & Pierce Ltd., came from their London headquarters to the Montreal meeting and Mr. Benn headed for the West Coast. Mr. Costin made a report to a chemical pulping group on conditions in Europe . . . PHILIP H. PRIOR, Reed Paper Group paper and board research and development division, also came from England . . . P. E. FOURIE, from South Africa, SHEIKH MD. ALAUDDIN from Ceylon, KJELL SOLVBERG from Norway, BORJE STEENBERG and JAN BERGSTROM from Sweden, CHUNIL KAUL from India, EKRAMUL AMEEN from Pakistan, and FRANK STOUGHTON from Tuxtepec, Mexico, added to international flavor of the Canadian sessions . . .

J. H. M. Jones, vice pres. and gen. mgr., Mersey Paper Co., a Bowater's subsidiary, has been appointed pres., succeeding B. J. WALTERS, effective July 1 . . . ROSS DOUGLAS, woods mgr., Alaska Pine & Cellulose, Vancouver, B.C., has been elected vice pres. representing British Columbia at the Annual Forestry Conference. . . JOHN E. LIERSCH, exec. vice pres. Powell River Co., Vancouver, B.C., has been appointed to a government commission sponsored to investigate the province's educational system. Before joining Powell River Co. soon after World War II Mr. Liersch was head of



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the forestry faculty at the University of British Columbia . . .

HAROLD S. FOLEY, chairman, Powell River Co., received an honorary degree from St. Mary's University, Halifax, N.S., for his "outstanding assistance" to Hungarian students in British Columbia and his contribution to Canadian economic development . . . SIDNEY J. COOPER recently assumed managership of Martin Paper Products, Ltd., Winnipeg subsidiary of Powell River Co., on the retirement of JAMES R. GLYNN . . . HAROLD IRVING was appointed comptroller and treas. of the Pulp and Paper Research Institute of Canada, also serves as business mgr . . .

New Plant in New England

Construction is underway on a plant for Lodding Engineering Corporation, Worcester, Mass., the first in the development of a 60-acre industrial park in suburban Auburn. Lodding has acquired eight acres in this location, near the Massachusetts Turnpike and the line of the New York, New Haven & Hartford Railroad.

The new plant, which will have 52,000 sq. ft. of manufacturing space and 12,000 sq. ft. of office space, is 400 ft. long with a central bay 50 ft. wide and two flanking bays 40 ft. wide.

Lodding has specialized on doctors, doctor blades and blade holders since the business was started in 1929 by Fred Lodding, formerly chief engineer of Rice, Barton and Fales Corp. Woodrow C. Lodding is president of the company.

"From ingot to fourdrinier wire"

ANNEALING THE WIRES

Just as one alloy differs from another, so do their individual requirements for annealing vary. A definite ratio of speed and temperature must be used for each type. Skilled employees, tending our modern annealing furnaces, adhere faithfully to the proper speed-heat formulae so that your Eastwood wire will have the longest possible life.

Because the Eastwood-Nealley plant is a *completely integrated* one, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are *truly ours*—"from ingot to fourdrinier wire".

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.

Automatic Break Detector-Corrector

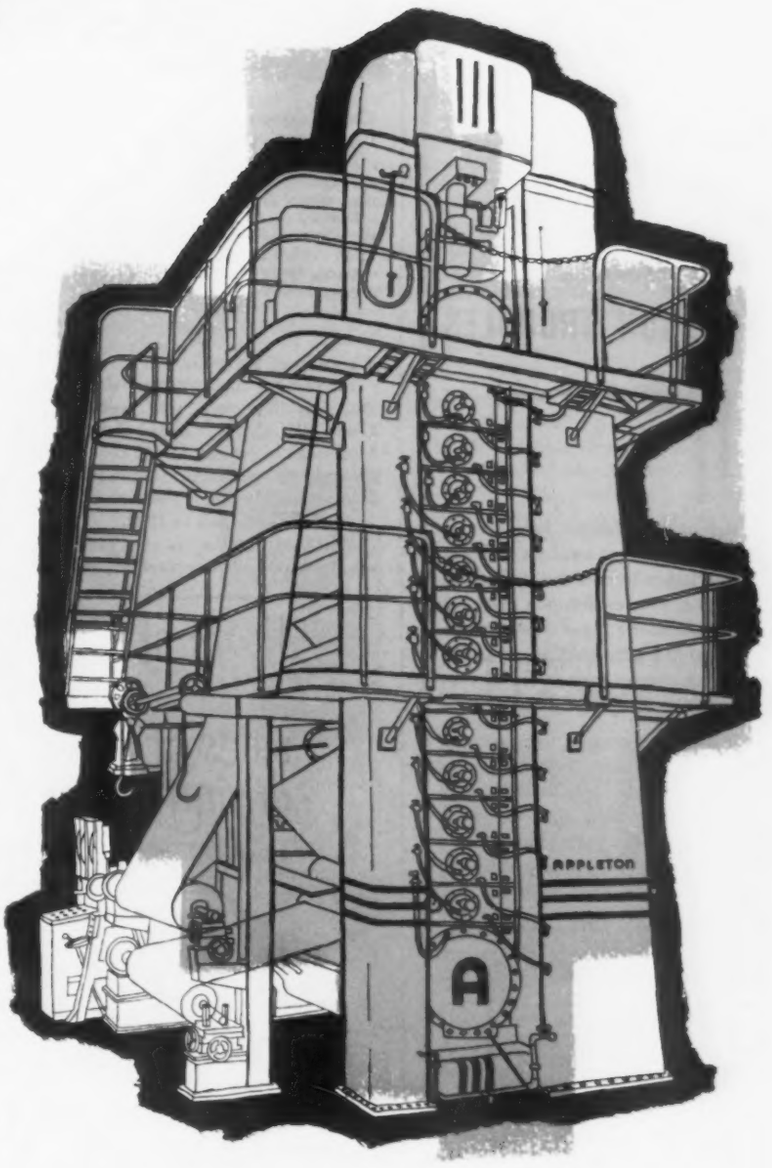
Two Argentina inventors have come up with a device called Telector Automatic Break System. First installation in the United States was in a Pennsylvania mill where unit reportedly worked well.

Unit consists of two squirts on couch and system of photoelectric relays. When a break occurs, squirt breaks down half of sheet, then moving upon a pendulum, restores sheet.

Fred Schlanger of Federal Mfg. and Eng. Corp. will distribute units in the U.S.

New Research Building at Institute in Appleton

The Institute of Paper Chemistry, Appleton, Wis., has completed its first unit, the South Research Building, in a major building program announced in May 1956. This cement block brick-faced $200,000 structure consists of one story and full basement which provide 16,000 sq. ft. The main floor has been leased to the Sulphite Pulp Manufacturers' Research League, providing a conference room, a large laboratory, and pilot plant. The basement will be used by the Institute. Special installations include a refrigerated room and incubation room.



In the past 11 years, the Appleton Machine Company has built over 71% of all the supercalenders made or sold in the United States and Canada. The reason for this record is simple: *confidence* . . . confidence in Appleton's experienced design and production staff to build equipment that pays-off with profitable performance. No matter how exacting the specifications—from the largest supercalender ever erected in the United States to the highest pressure glassine stack—Appleton's touch with the tough ones is a proven fact. Write or call your Appleton representative. He has an enviable record for problem solving.

APPLETON MACHINE COMPANY

APPLETON, WISCONSIN

QUIT WORRYING ABOUT SYPHON TROUBLES

Adopt the Midwest Auto-Flex — the syphon that employs a spring and brace to hold the end of the pipe at proper distance from the bottom of the dryer. No possibility of the pipe shifting position, hence proper evacuation of water and air at all times.

If that isn't enough to convince, realize that the cantilever leverage exerted is less than ½ that exerted by bent pipe syphons, avoiding drag on the journal and preventing the excessive wear that leads to trouble.

Fits all steam joints and quickly installed. Effective at all operating speeds.

ROSS
MIDWEST
FULTON
CORP.
DAYTON, OHIO

Subsidiary
J. O. Ross Engineering
Div. Midland-Ross Corp.

Representatives
James Brinkley, Seattle; Clark & Vicario, North Tarrytown, N. Y.; Ross Engineering of Canada Limited, Montreal—Fredericton—Toronto—Port Arthur—Vancouver

Carl Magnus is Vice Pres., Calkin & Bayley, Inc. . . .

. . . and will be in charge of pulp and paper mill operations. Mr. Magnus is a graduate of the U. of Maine and has had important managerial positions in Wisconsin, Ohio and other mills. JOHN L. PARSONS, with Calkin & Bayley since its inception, becomes vice pres. i/c pulp and paper research and development.

Chain Belt Election

Election of an executive vice president and three new vice presidents at Chain Belt Co. is announced by L. B. MCKNIGHT, president. O. W. CARPENTER, formerly vice president, construction machinery and finance, is now executive v.p. He joined Chain Belt in 1943.

W. C. MESSINGER, as vice president—construction machinery section, has been promoted from manager, construction machinery division, Milwaukee.

E. M. RHODES, as vice president—industrial equipment section, has previously been manager of this section. He has executive responsibility for the five industrial divisions comprising the industrial equipment section.

G. H. WOODLAND, as Vice President—Marketing, is advanced from General Sales Manager—industrial equipment section. He will be responsible for the field force, sales policy, marketing methods and distribution of the products of the industrial equipment section.

Gredler ..... Ross

Join Oregon Saw Div. of Omark Industries, Inc.

ART GREDLER as service manager and JERRY ROSS specializing in design and engineering, will headquarter in Portland, Ore.

Hours of FUN after miles of driving to..... KANSAS CITY Missouri

EVERYTHING TO PLEASE YOU

☆ Crystal-clear Swimming Pool
☆ Playground for Children
☆ Color TV in Redwood Bar

100 luxury units—each with tiled bath, dressing room and closet. Free radio and Muzak. Individually controlled air-conditioning and heating. Delicious food at moderate prices.

CHILDREN UNDER 12 FREE.
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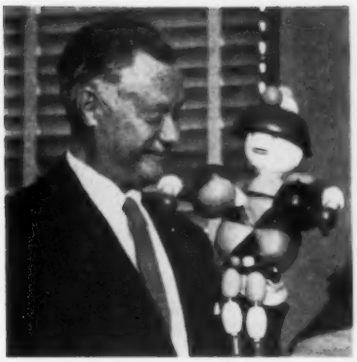


Paper Week Puppet Show

This was way American Cyanamid introduced its new HE (high efficiency) process for wet strength resin economy. JOHN M. WALSH, mgr., Cyanamid's Paper Chemicals Dept., wasn't in the show, but here he holds one of puppets which performed in Commodore hotel lobby during Paper Week in New York. Now papermakers achieve same wet strength advantages with 30 to 60% less Melostrength resin.

Agronin ..... Bender

Named Appleton Machine Execs

TANY AGRONIN has joined Appleton Machine Co. as executive vice president and general manager and RAY S. BENDER has been appointed vice president of the firm, announces VICTOR W. BLOOMER, president.

Mr. Agronin brings 20 years experience in the industry to Appleton Machine. Most recently he was manager of Black-Clawson's Brazilian affiliate, Companhia Federal de Fundicao. Previously he served in B-C's Pandia and Sharlte divisions. Mr. Bender will supervise the company's sales force. He succeeds R. M. (DICK) RADSCH, who is retiring but who will remain with the company as a consultant.

Becherer ..... Christiansen

Link-Belt Opens Los Angeles Plant

ROBERT C. BECHERER, pres., DAVID E. DAVIDSON, vice pres. for sales, HARVEY V. EASTLING, gen. mgr., Pacific divisions, ROBERT C. CHRISTIANSEN, southern gen. mgr., Pacific div. and members of Link-Belt Co.'s Los Angeles organization were hosts at the official opening of new Los Angeles plant on Jan. 16. Located at 1200 Sycamore St., Montebello, the new plant more than doubles production facilities of the previous plant.

Bulkley Dunton Adds Line

Bulkley Dunton Organization is now distributing Horse Head titanium dioxides to the paper industry for New Jersey Zinc Co. The Horse Head line comprises a complete range of anatase and rutile titanium dioxides. Technical assistance will be available to B-D accounts from the research department of N.J. Zinc.

Doug Sutherland Joins Shartle Division of Black-Clawson . . .

. . . as asst. to the gen. mgr. Formerly vice pres. of Sutherland Refiner Corp., Mr. Sutherland will be responsible for integrating Sutherland products in the Black-Clawson line of pulp and paper mill equipment. He will make his headquarters in Middletown, O., moving there from his present home near Trenton, N.J. HUGO WALTER and ANTHONY A. CHICETTE have also joined B-C as service engineers specializing in Sutherland disk refiners, pressure washers and breaker traps.

Vernon L. Tipka, Sales Rep for Several Lines in the West

Mr. Tipka, former vice pres.-gen. mgr., St. Lawrence Paper Co., has established his own industrial equipment-supplies business at 415 Jackson St., Oregon City, Ore., representing Scapa dryer felts, Fitchburg screen plates, McCluskey wires, Morey paper mill supplies, American Metallic Fabric wire cloth. He and his wife, Nita, thus return to their former home town, where he was asst. mgr. and sec. director of Hawley Pulp & Paper Co. (now Publishers' Paper Co.) before moving east to be executive secy. of the Newsprint Service Bureau in New York City.

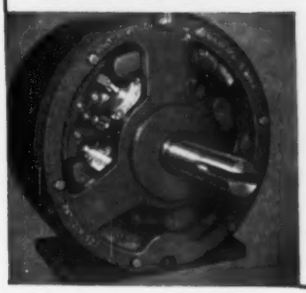
Meet Huyck's
LA RUE

John P. La Rue is Huyck's Assistant Field Service Manager, engaged in trouble shooting special mill problems. He is a graduate of M. I. T. and prior to joining Huyck was a sales engineer for the Montague Machine Co., manufacturers of pulp and paper mill machinery. John's group is proud of its reputation of being on call twenty-four hours a day for every papermaker in the United States.

HUYCK FELTS

First in Quality . . . First in Service Since 1870

STOP TELESCOPING ROLLS MUSHROOMING CORES



Use Air Operated HORTON Clutches and Brakes to control the sheet tension on your winders and back stands. Take the guess work out of tensioning and let HORTON equipment give you uniform tight rolls all the time.

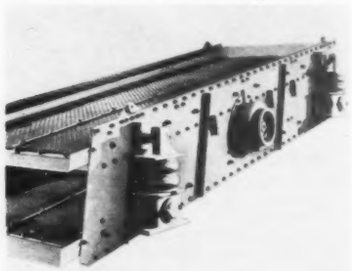
VARIABLE SPEED CLUTCH PULLEYS
GOVERNOR CONTROLLED BRAKES

HORTON MFG. CO., INC.
MINNEAPOLIS 14, MINNESOTA

PULP & PAPER New Equipment and Supplies

Air Springs

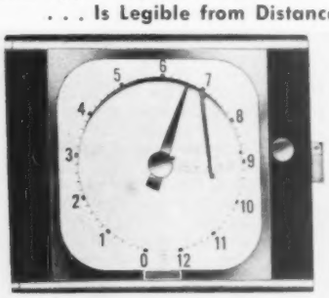
. . . Used on Vibrating Screens



Applications: Adjusting weight differences to keep deck level, isolating vibration.
Advantages: Provides quiet operation and reduced maintenance costs. They are easy to install and have no mechanical parts to lubricate or service. One size accommodates a wide range of screen sizes.
Specifications: Constructed of nylon cord and high tensile strength, heat-resistant compounds, the air springs provide 98 to 99% vibration isolation, depending on air pressure used. Springs can be inflated from main air line, portable pressure tank, by pump or air bomb. Available on new floor-mounted vibrating screens in sizes 5 to 12 ft. and larger. Can also be installed on screens in the field if screen is already floor-mounted with dual steel spring arrangements on each corner.
Supplier: **Allis-Chalmers, Milwaukee 1, Wis., SPring 4-3600, ask for bulletin 07B8931.**

Dial Type Potentiometer

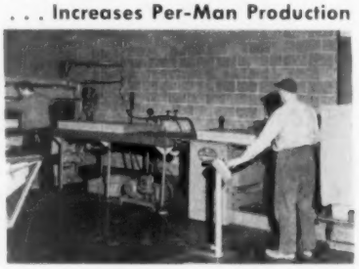
. . . Is Legible from Distance



Applications: For measurements of temperature, speed, pressure, pH, electrical and other variables.
Advantages: Is designed for use when legibility of indicating scale from greater distance is an important factor.
Specifications: Has same 32-in. scale and same pointer as standard round-chart recording Dynamaster and is mounted in standard case. There is no recording mechanism; the instrument indicates only. It is offered in electric control models in on-off, two-position, three-position, floating, proportional and current-input types of control.
Supplier: **The Bristol Co., Waterbury 20, Conn., PLaza 6-4451, ask for bulletin P1266.**

New Stacker-Unstacker

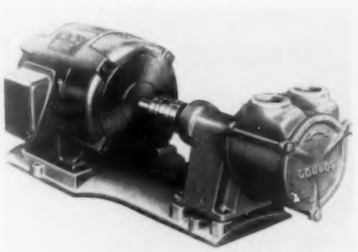
. . . Increases Per-Man Production



Applications: For unstacking skid loads of paper into packages for paper trimmers and for re-stacking it on skids after it has been trimmed.
Advantages: Eliminates lifting and folding of paper. Increases production through trimmer with less labor. Unit requires no special foundations or pits and can be easily moved if relocation becomes necessary. Units are identical for stacking or unstacking.
Specifications: Unit shown is Model M-1187 for maximum sheet size 48 in. x 50 in. Will stack or unstack skid loads 72 in. high. Other models available for sheet sizes up to 60 in. x 78 in.
Supplier: **American Mfg. Co., Inc., 2119 Pacific Ave., Tacoma 2, Wash., MArket 7-6153.**

Liquid Ring Pump

. . . For Transfer Service



Applications: Fig. 2520 pump transfers air alone, liquid alone or combination of air and liquid.
Advantages: Is light-weight, quick and has positive self-priming action. Casing cover provides access to interior without disturbing pipe connections.
Specifications: Impeller and shaft are only moving parts. Impeller is straight blade or paddle type, keyed to shaft. Available in cast iron or AISI 316 stainless steel. Pump weight is 42 lbs. Suction and discharge connections in casing are threaded.
Supplier: **Goulds Pumps, Inc., 39 Black Brook Rd., Seneca Falls, N.Y., LOgan 8-5811.**

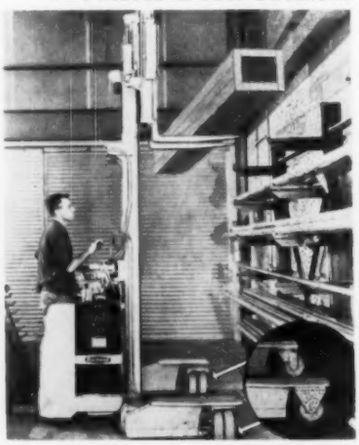
Mill Regulator

. . . For Trouble-free Operation

Applications: For close and continuous regulation of line speed, voltage or tension.
Advantages: Based on the principle of dual-circuitry, the Reliance VSMR offers uninterrupted and trouble-free operation. Dual-circuitry permits normal failures in various parts of the circuits without affecting operation of the drive or regulator.
Specifications: The VSMR is supplied for connection to any standard line voltages between 115 and 550 volts a-c., operating on frequencies of either 50 or 60 cycles. Available in two output current ratings: 6 and 10 amperes. Rated output is zero to 250 volts d-c.
Supplier: **Reliance Electric and Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio, REdwood 2-7000.**

New Lift Truck

. . . Moves in Four Directions

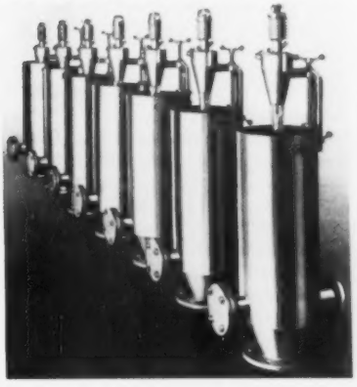


Applications: Moving long loads into narrow aisle storage area.
Advantages: 4-D truck can travel forward, backward and sideways to the right and to the left. Loads 14 ft. or

longer can be placed in storage from aisles only 7 ft. wide.
Specifications: Right hand load wheel is hydraulically adjustable by operator for forward and backward travel or may be turned 90 degrees for right angle side movement. Free swiveling caster in left hand load wheel follows control wheel. Available in reach fork and outrigger base fork electric truck models.
Supplier: **The Raymond Corp., Greene, N.Y.**

Källe Stainless Regulator

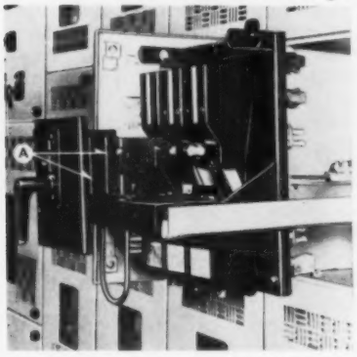
. . . for Accurate Control of Stock



Applications: For control and regulation of flowing stock.
Advantages: Permits reliable measurement of extremely small torque variations; sensing element is automatically compensated for variations in flow; consistencies between 1.5 and 6% can be measured with extreme accuracy; extended shaft permits complete immersion at consistencies below 1.5% permitting measurement of thin suspensions with long grain fibers with a high degree of accuracy. Several of these machines are now in use in large Southern mills.
Supplier: **Rosenblad Corp., 1270 Sixth Ave., New York 20, N. Y.**

Air Circuit Breaker

. . . Has 3 Position Design

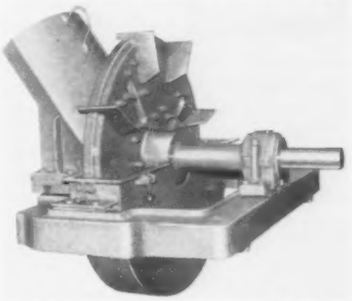


Applications: On control panels.
Advantages: With Type DB circuit breaker in any of its three positions—connected, test and disconnected—door of breaker compartment can be closed. Two white lines indicate breaker position. Three position feature gives additional convenience and safety and greater protection for the circuit breaker. In emergencies existing space breakers can be used in new three-position housings, or new three-position breaker used in older housings.

Specifications: This 600-volt, 15- to 4000-amperes, metal-enclosed switchgear has interrupting rating of the units from 15,000 to 100,000 amperes.
Supplier: **Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa., EXpress 1-2800.**

47 in. Chipper

. . . For Slabs or Round Wood



Applications: Producing good quality chips from sawmill slabs or other waste wood.

CIBA

CHLORANTINE FAST YELLOW P-RLSW

CHLORANTINE® FAST YELLOW P-RNLL

EXCELLENT MONEY VALUES . . .

These two Chlorantine Fast dyes are excellent money values for use on bleached kraft base stocks . . . have high brilliance which takes full advantage of today's high color bleached pulps to produce bright clean shades of spectrum purity . . . and can be used alone or in combination with shading colors to give a wide range of Yellows for many purposes.

Suitable for either sized or unsized grades of papers in light, medium, and heavy dyeings, they can be used on unbleached pulps with good results.

Chlorantine Fast Yellow P-RLSW is dischargeable with sodium hypochlorite in a single stage bleaching. It possesses excellent fastness to alkali and good to excellent fastness to acids. It is stable to pH variation, has good solubility and good fastness to light. It can be used to produce strong goldenrod shades at moderate cost.

Chlorantine Fast Yellow P-RNLL is a clean yellow somewhat redder than Chlorantine Fast Yellow P-RLSW. It has good light and water fastness and has excellent fastness to strong alkalis, hypochlorite solutions, and strong acids. It is especially useful where resistance to chemical fuming or dusts is in demand.

Your inquiries are invited on CIBA "Paper-Proved" technical information, samples and color matching.

CIBA Company Inc., Paper Chemicals Department
627 Greenwich Street, New York 14, N. Y.

Advantages: Chips are uniform size, with minimum sawdust. Chips can be discharged underneath or by blowing to right or left.
Specifications: Takes slabs up to 16 in. wide and pulpwood up to 7 in. diameter. Standard capacity is from 5 to 7 cords per hr. In illustration, top of blowing hood is removed, showing chip slots and blowing vanes. Heavy-duty construction.
Supplier: **Carthage Machine Co., Carthage, N.Y., Phone 911.**

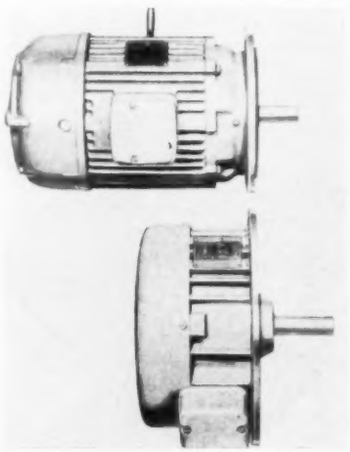
Power Tagline

. . . Provides Grapple Control

Applications: "Herding" logs, picking up single drifters, other logging operations.
Advantages: Provides smooth, constant grapple control and maintains constant line pull at all levels. Reduces "boom-up" or "boom-down" to minimum because operator can pull grapple back under boom to reach otherwise inaccessible logs or release brake and throw grapple far past boom. Self energizing snubber prevents backlash when grapple is thrown. Grapple can be positioned accurately on logs and readily righted with positive control.
Specifications: Controls can be mounted for either hand or foot operation. The Powertag drives off the main drum gear. It has all steel fabrication, alloy shaft, steel cut gear, steel drum, anti-friction bearings, heavy duty clutch, automatic brake and hydraulic or air controls.
Supplier: **Electric Steel Foundry Co., 2141 N.W. 25th Ave., Portland 10, Ore.**

Pancake Motor

. . . Reduces Motor Length



Applications: For use on machine tools, roof ventilating fans, or wherever space is limited.
Advantages: Use of formed end coils and one-piece housing-bearing bracket reduces motor length up to 60% for standard motors of same rating with no reduction in motor performance.
Specifications: Available in ratings from 1 to 15 hp at 1800, 1200 and 900 rpm. It is flange type motor of conventional radial air-gap design. It is furnished in either open drip-proof enclosure or, for use where contaminants are present, in an enclosed construction.
Supplier: **The Louis Allis Co., Dept. P, 427 E. Stewart St., Milwaukee 1, Wis., HUmboldt 1-6000. Ask for bulletin 2100 for enclosed motor or 2150 for open drip-proof motor.**

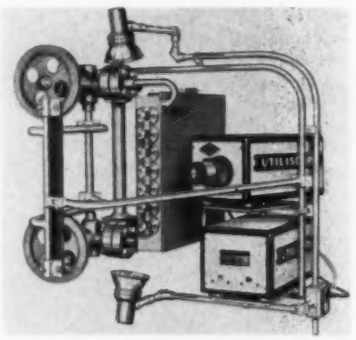
PVC Pipe Fittings

. . . Lightweight, Economical

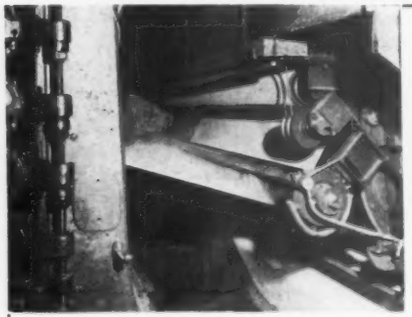
Applications: For use with PVC piping systems under moderate pressure and temperature conditions, such as water piping systems where salt, hardness, ionization or other factors pose corrosion problems.
Advantages: Fittings match burst strength of Schedule 40 PVC pipe and cost about 1/3 less than Tube Turns' regular line of standard heavy wall (Schedule 80) industrial fittings. They will be made of both normal and high-impact materials with same characteristics of corrosion resistance, non-aging and easy, low cost installation as heavier fittings.
Specifications: Line includes 90 degree and 45 degree elbows, tees, couplings and caps in ¾ in. to 2 in. sizes, as well as 3 in. and 4 in. couplings. Fittings are socket type and come in both Schedule A and Schedule 40 wall thicknesses. They match standard pipe sizes that meet ASA and ASTM standards.
Supplier: **Tube Turns Plastics, Inc., Louisville, Ky., JUniper 7-7551.**

Utili-Mount

. . . For Closed Circuit TV



Applications: For installation of closed circuit television to watch a Multi-Port or continuous vision water level gauge.
Advantages: Is quick, easy and inexpensive to install. Gauge connections are furnished to drum requirements and rest of package is permanently mounted on gauge. Gauge is read accurately on TV viewing screen on boiler control panel or other convenient point. Maximum safety provided by mirror for indirect viewing. May be installed outdoors. Utiliscope either gives accurate reading or none at all.
Specifications: Gauge connections are furnished to drum requirements. Rest of package is permanently mounted on the gauge.
Supplier: **Diamond Power Specialty Corp., Lancaster, O.**



Improve Paper Quality
with
DUPASQUIER DRIPLESS STEAM SHOWER PIPE

- **WET END—breaks up bubbles, disperses foam**
- **DRY END—increases sheet moisture, improves finish, lowers bulk and caliper**
- **SAFELY USED anywhere dripless steam desired**

Custom Built for Any Machine
U.S. Pat. No. 2642314, in Canada No. 509451
Write for Illustrated Folder

J. H. DUPASQUIER 560 E. Clarendon St. Gladstone, Oregon

SPROUT-WALDRON

Pointers

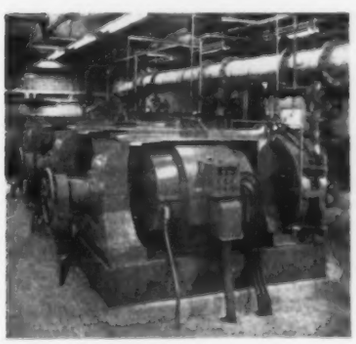
for Mixing and Blending • Size Reduction
Size Classification • Bulk Materials Handling • Pelleting and Densifying

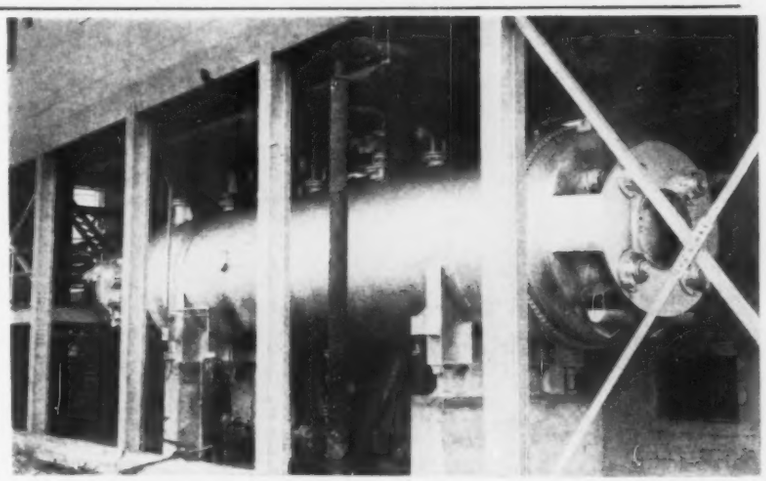
Published in the interest of better processing by Sprout, Waldron & Co., Inc., Muncy, Penna.

EFFICIENT REFINING KEY TO NEUTRACEL PROCESS

When the Hammermill Paper Company faced the problem of dwindling soft wood supply they developed the Neutracel® process to permit them to use the large supply of hard wood right at their doorstep. For the 30 ton per day pilot plant which was set in operation to prove the validity of the new process, they put their faith in the efficient operation of Sprout-Waldron 36-2 refiners. The stock was refined in these precision Sprout-Waldron units before being blended with spruce sulphite and bleached in a conventional manner. Operation of the 30 ton per day plant was so successful that Sprout-Waldron refiners were again specified for the $6,000,000 production plant with capacity for 100 ton and expansion facilities to twice that volume.

Refining is carried out by Sprout-Waldron disc refiners powered by 450 HP, 900 RPM, Electric Machinery motors. Consistency is approximately 5%. Knotter rejects are defiberized in Sprout-Waldron refining units. If you haven't read the full story on Hammermill's Neutracel® Process for bleached neutral sulphite pulp, ask for a copy of Reprint No. 39.





Sprout-Waldron Continuous Digester producing pulp for .009 corrugating board at Sonoco Products Company, Hartsville, South Carolina.

SPROUT-WALDRON ANNOUNCES NEW CONTINUOUS DIGESTER FEATURING QUALITY, FLEXIBILITY AND SPEED

SW

UNIFLOW FEEDERS

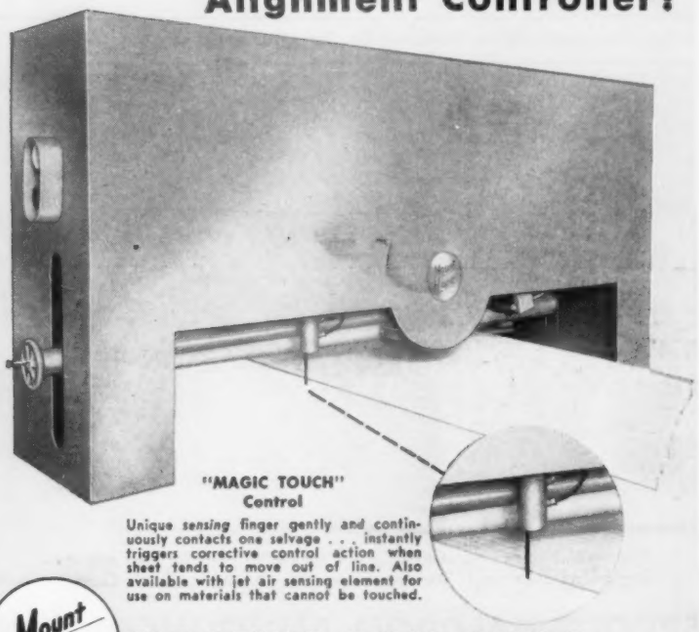
The publication of a new bulletin describing the S-W variable speed uniflow feeder has been announced. The Sprout-Waldron feeder has a specially designed combination screw and paddle conveyor arrangement which provides maximum efficiency. This results in uniform, continuous and controlled feeding.

Bulletin 187 not only illustrates and describes the uniflow feeder but presents a typical system for feeding and refining kraft rejects. Copies on request.

The Sprout-Waldron "Twin" Digester opens a new concept in continuous pulping, offering improved yield, uniform pulp, high speed, flexibility; and low installation, operating and maintenance costs. Really two independent units in one, each half of the Sprout-Waldron Digester is self-contained and can process chips at different rates and with different chemicals, providing a degree of flexibility unavailable in any other system. Advantages of the Sprout-Waldron Continuous Digester include: short cooking time (12 to 15 minutes for semi-chemical, 30 to 35 minutes for kraft or bleached type chemical pulp); high liquor to pulp ratio; low chemical cost; improved yield; uniform pulp; flexibility; economy—lowest installation cost and horsepower days per ton of any continuous digester. For full details, request Bulletin 196.

PP/101

NEW!... Today's Most Accurate Lateral Alignment Controller!


"MAGIC TOUCH"
Control
Unique sensing finger gently and continuously contacts one selvage . . . instantly triggers corrective control action when sheet tends to move out of line. Also available with jet air sensing element for use on materials that cannot be touched.

Mount Hope **FLOATING ROLL GUIDE**

- **Corrects with Split-Second Precision** any tendency of moving cloth, paper, plastic film or sheet to run out of alignment.
- **Automatically Guides without Nipping** through "swing action" of *separated* rolls . . . keeps material at right angles to rolls.
- **Reduces Seconds** caused by marred selvages, displaced warp threads, damaged nap, or distorted edges.
- **Builds Square-Edged Rolls** that provide closer register in printing, less trim waste, smoother all-around processing.

Now you can be sure of *smooth*, automatic control of lateral alignment within thousandths of an inch! The new Mount Hope Floating Roll Guide provides the most positive guiding action that you can apply to textiles, paper, foil, and plastic film or sheet. This compact, self-contained unit installs easily wherever needed on continuous or batch-type machines. Guides gently without nipping, jerking, pulling or stretching. Provides clean, oil-free mechanical operation. Best way to keep *your* production "in line." For complete details, mail coupons for Free Illustrated Bulletin.

MOUNT HOPE
MACHINERY COMPANY
76 Fifth Street, Taunton, Mass.
PLANTS AT TAUNTON, MASS., and CHARLOTTE, N.C.

MAIL COUPON NOW!

Mount Hope Machinery Company
76 Fifth Street
Taunton, Massachusetts

Please send me Free Bulletin describing the Floating Roll Guide.

NAME .....
COMPANY .....
ADDRESS .....
CITY ..... STATE .....

Thomas ..... Schultz ..... Kolybaba

Pusey & Jones Expands Staff

The Pusey and Jones Corp., Wilmington, Del., named ALBERT M. THOMAS admin. vice pres., MARTIN W. SCHULTZ vice pres. i/c mfg. and JOHN W. KOLYBABA gen. sales mgr. of paper machinery div. Mr. Thomas will direct marketing, sales, advertising and public relations. He is a graduate of Ashland College, Ashland, O., and was vice pres. and sales mgr. for Heller Tool Co., a division of Simond Saw & Steel Co. Mr. Schultz will direct engineering and manufacturing operations. He was formerly a manufacturing executive with a General Motors Div. Mr. Kolybaba was with Black-Clawson Co. and Dominion Engineering Co. He will make his headquarters at the home office in Wilmington.

Beck ..... Gayman

Ciba Reps Tour Coast Mills

Ciba Co. representatives caught by PULP & PAPER during recent West Coast tour: HERB BECK, newly named as Ciba's sales manager to pulp-paper industry, New York, and DAN GAYMAN, Pacific Northwest representative with offices at Portland, Ore.

Lorin Bigler Is Vice Pres. i/c Sales, Griffith Rubber

. . . Formerly director of sales for Griffith's Portland plant, Mr. Bigler will supervise sales for the entire firm and subsidiaries Chemical-Proof Corp. and Griffith Plastics, both Seattle, and affiliate Western Plastics & Coatings, Ltd., New Westminster, B.C.

we make

stainless steel valves

...nothing else

ALOYCO 111 Gate Valve for 150 lb. service features double disc ball-and-socket wedges. They are free to rotate and are non-fouling in any position which insures tight closure. There are Aloyco valves and alloys designed for every type of corrosive service.

SPECIALIZATION! Isn't it reasonable to believe that the one company with experience, facilities, research and service all devoted to a single product is your best source of supply? The modern Aloyco foundry, for example, is designed to produce one end product only: pressure-tight Stainless Steel Valve castings of the finest quality.

ALLOY STEEL PRODUCTS COMPANY

LINDEN, NEW JERSEY

Longer Lasting

ALOYCO

VALVES

1ST IN CORROSIVE SERVICE

PULP & PAPER — Suppliers in the News

Gardner, Regional Mgr.

HUGH GARDNER, microbiologist for Buckman Laboratories, Inc., becomes western regional mgr. for the firm and continues to work out of the Portland, Ore. western district headquarters. Dr. PAUL KRUMPERMAN is Buckman's microbiologist in California.

John K. Moffett, Jr. of U. S. Industrial Chemicals Co. . .

. . . div. of National Distillers and Chemical Corp., has been appointed asst. mgr. of Petrothene polyethylene sales. Mr. Moffett joined U.S.I. after graduating from Yale U. in 1948. He was supervisor of the firm's sodium peroxide plant, head of sodium peroxide sales and in a sales development position for Petrothene polyethylene resins.

Alvin McCully, Sales Engineer, Samuel M. Langston Co. . .

. . . has been assigned to eastern territory. Mr. McCully joined Langston as sales asst. in May, 1956. He previously was with Conoflow Corp. and the Atlantic City, N.J., Electric Co. He studied mechanical engineering at Duke U., Florida U. and the U.S. Naval Academy.

R. L. Schuerman Manages New Sales Dept. for A. E. Staley . . .

. . . serving the paper industry. Mr. Schuerman has been with Staley 12 years and has been asst. mgr. i c paper and corrugating industry sales since 1955. He was born in Decatur, Ill., and graduated from Purdue U. in 1941.

To Manage Jones Pulp Press Div.

THURSTON L. YOCUM, 46, a native of Estacado, Ore., and a chem. engineering graduate of Oregon State College. Mr. Yocum is an Army veteran of World War II and was with Crown Zellerbach in Washington and Oregon before joining E. D. Jones in 1947. He is married to the former Margaret L. Bales of Corvallis, Ore., and they have one son.

Fenn ..... Camp

Promoted in National Aniline

HARRIS B. FENN Jr. has been named manager—dyestuff sales and ERIC W. CAMP, West Coast resident manager for National Aniline Div., Allied Chemical and Dye Corp. Mr. Fenn moves from West Coast to New York City and Mr. Camp will headquarter at 235 Montgomery St., San Francisco. JAMES B. CLARKE is new sales rep in Portland, Ore., moving there from Chicago.

"EXCELSIOR" FELTS

The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper

KNOX WOOLEN COMPANY

CAMDEN, MAINE

Pacific Coast Agents

DAN E. CHARLES AGENCY, 1331 Third Avenue, Seattle, Wash.

RAY SMYTHE CO.

Pulp, Paper and Wood Mill Machinery and Supplies

729 S. W. ALDER STREET, PORTLAND 5, ORE. CA 3-0502

MERRICK FEEDOWEIGHT

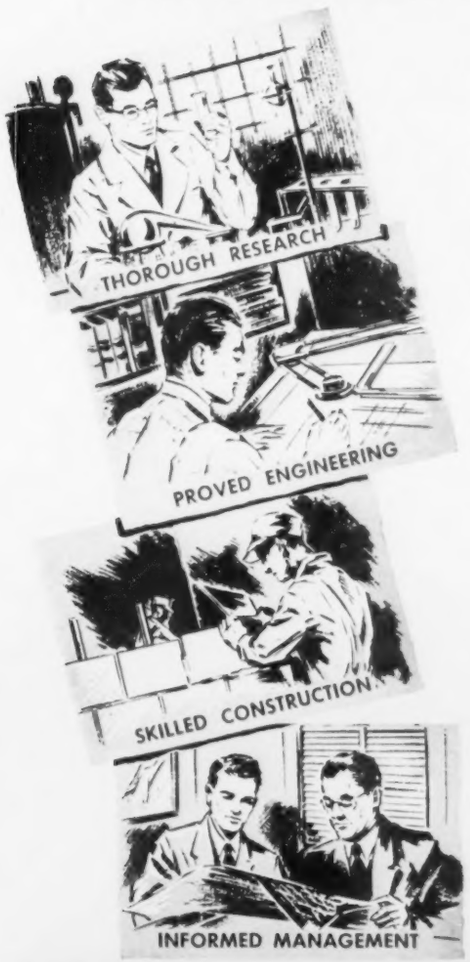
for Accurately Feeding Salt Cake and Lime, by Weight

Write for Bulletin 551

MERRICK SCALE MFG. CO. 185 Summer St. Passaic, N. J.

RESPONSIBLE

CONTRACT PERFORMANCE REQUIRES *All Four*



With processes changing so rapidly, your linings contractor must have a thorough knowledge of all of the chemical and physical requirements involved in the job.

With modern specifications so precise, he must have highly competent, specialized engineering and construction skills.

And his guarantee of contract performance has to mean something.

Stebbins unequalled standing in all four of these fields is your assurance of performance to the high standards established by your consulting engineers.

Complete Design, Construction and Maintenance of LININGS and TILE TANKS

SINCE 1884
Specialists in Design Installation and Servicing of Linings and Tile Tanks

SEMCO

STEBBINS

Engineering and Manufacturing Company, Watertown, N. Y.

STEBBINS ENGINEERING CORP. – TOWER BLDG., SEATTLE, WASH.

CANADIAN STEBBINS ENGR. & MFG. CO., LTD. – TOWN OF MOUNT ROYAL, MONTREAL 9, CANADA

Here's why WEST END can answer an inquiry on your particular specifications immediately!

When you require special data on a WEST END product and phone for information, the Sales Office Manager in Oakland with whom you speak can contact the plant at WEST END immediately. He talks by private wire teletype with the Technical Director and receives an authoritative answer immediately. It is relayed to you often while you are still on the phone.

WEST END 's Sales Office Manager sales representatives and plant executives work together as a team manning a system that is, in our opinion, uniquely outstanding in the chemical industry. Their confidence in the efficiency of this system is reflected in the enthusiastic, helpful and friendly manner in which they promptly serve you . . . our customers.

WEST END CHEMICAL COMPANY
DIVISION OF STAUFFER CHEMICAL COMPANY
1956 WEBSTER, OAKLAND 12, CALIF. • PLANT, WESTEND, CALIF.

SODA ASH
SALT CAKE
BORAX · HYDRATED LIME

YOU GET MORE FOR YOUR FLUID MIXER DOLLAR

because we design and build the whole unit

It's simple economics! Philadelphia Mixer is the *only* manufacturer that designs and builds the complete unit—mixer drive, shafting, impeller and coupling. Because *we* control production and costs, we can *afford* to give you more mixer per dollar. For example:

- Extra large, heavy duty bearings throughout.
- Extremely heavy output shafting—machined, ground and polished.
- Drives designed with extra strength and rigidity to take maximum thrust and unbalanced loads.
- Quick-change gear sets for 14 standard speeds.

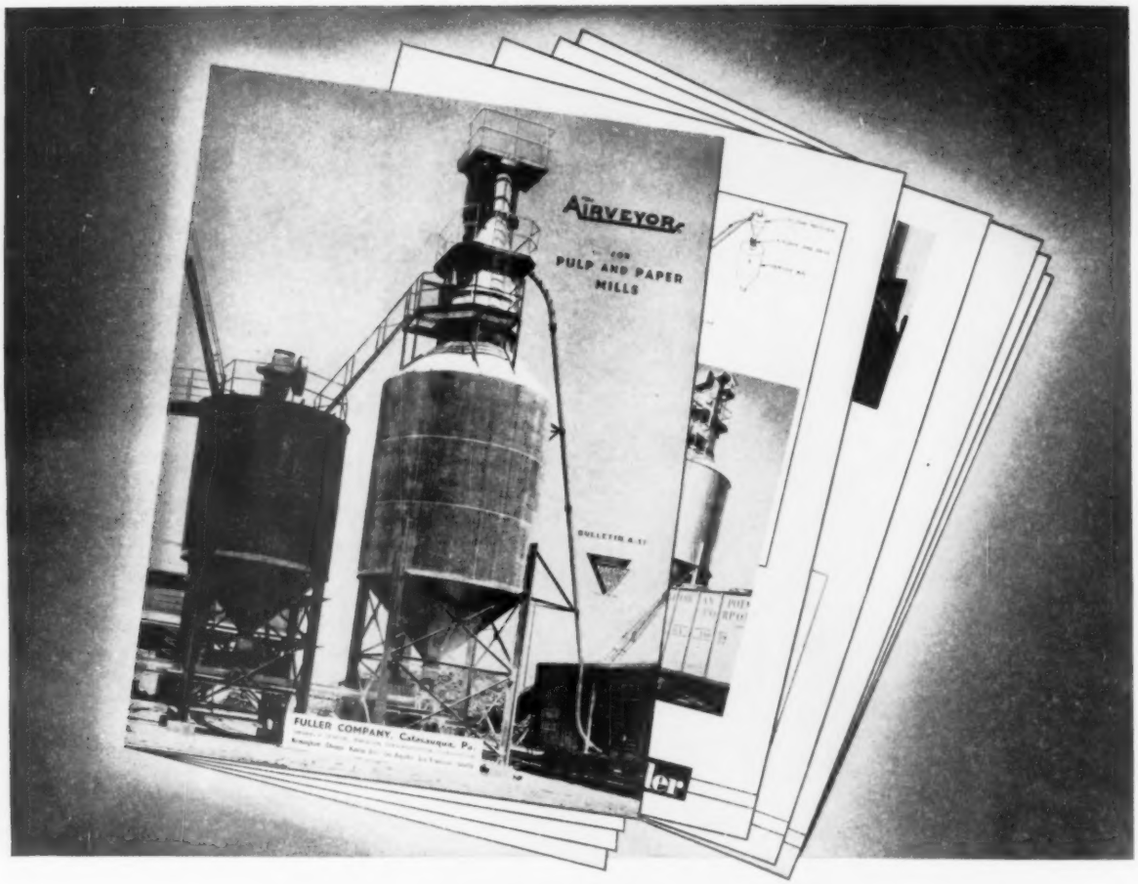
You don't pay a premium price for these extras—or for the better performance, longer life, lower maintenance. You get them as a *bonus* when you buy from Philadelphia Mixer . . . the only source that maintains completely integrated facilities for mixer design, application engineering, manufacturing and field service.

You can select your Philadelphia Mixer from six standard models. One to 200 hp. Special units available to 500 hp. Horizontal or vertical motor. Mechanical seal or packed stuffing box. Paddle or turbine type impellers. If you have had no direct experience with Philadelphia Mixers, we urge you to consult those who have. We'll be glad to help you.

Get the full story on Philadelphia Mixers. Write for Catalog A-27. It contains complete mechanical design information that permits you to make a catalog selection of the unit that best suits your requirements. Philadelphia Gear Works, Erie Ave. and G Street, Philadelphia 34, Pa.

philadelphia mixers

Offices in Principal Cities



HERE'S HOW THESE 10 MILLS CUT COSTS AND IMPROVED EFFICIENCY

- East Texas Pulp and Paper Company
- Mead Corporation
- St. Regis Paper Co.
- Finch, Pruyn & Co.
- Weyerhaeuser Timber Co.
- Fibreboard Products Co.
- Riegel-Carolina Corp.
- Ketchikan Pulp Company
- New York & Pennsylvania Company
- Crown-Zellerbach Canada, Ltd.

Exactly how ten representative pulp and paper mills cut costs and improved efficiency of their conveying operations using Airveyor® pneumatic systems is told in new Fuller Bulletin A-17. It gives pertinent facts and includes schematic drawings of each installation.

See how the Airveyor, engineered by Fuller, is used for virtually automatic handling of mill process chemicals, chips, sawdust, and hog fuel. Mills throughout the United States, Canada, Mexico and South America are achieving important operating savings through its simple design and dependable operation. The Airveyor eliminates handling losses and dusty working conditions. In addition to unloading from cars and delivery to storage, the Airveyor is used to reclaim materials from storage for delivery to service bins, mixing tanks, or other process equipment.

Airveyor systems are designed and built in three general types to meet all service requirements: vacuum, pressure, and a combination of vacuum and pressure.

Fuller's more than 30 years of specialized experience in pneumatic handling of dry bulk and granular materials can bring you important savings. Write for your copy of Bulletin A-17.

See Chemical Engineering catalog for details and specifications.

A-255
4269

FULLER COMPANY
128 Bridge St., Catasauqua, Pa.
SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION
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FULLER COMPANY GENERAL AMERICAN

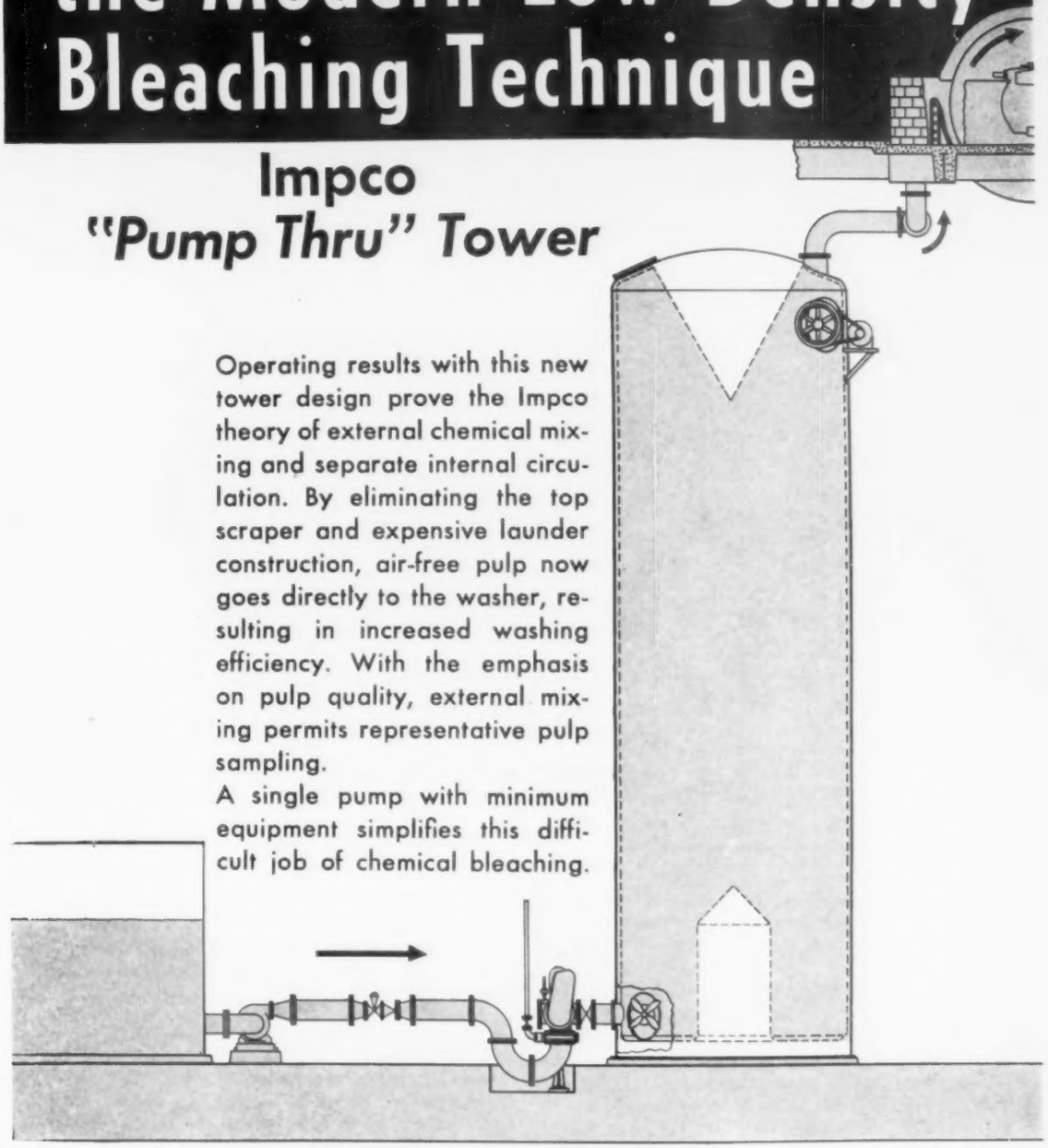
Fuller
. . . . pioneers in harnessing AIR

the Modern Low Density Bleaching Technique

Impco
"Pump Thru" Tower

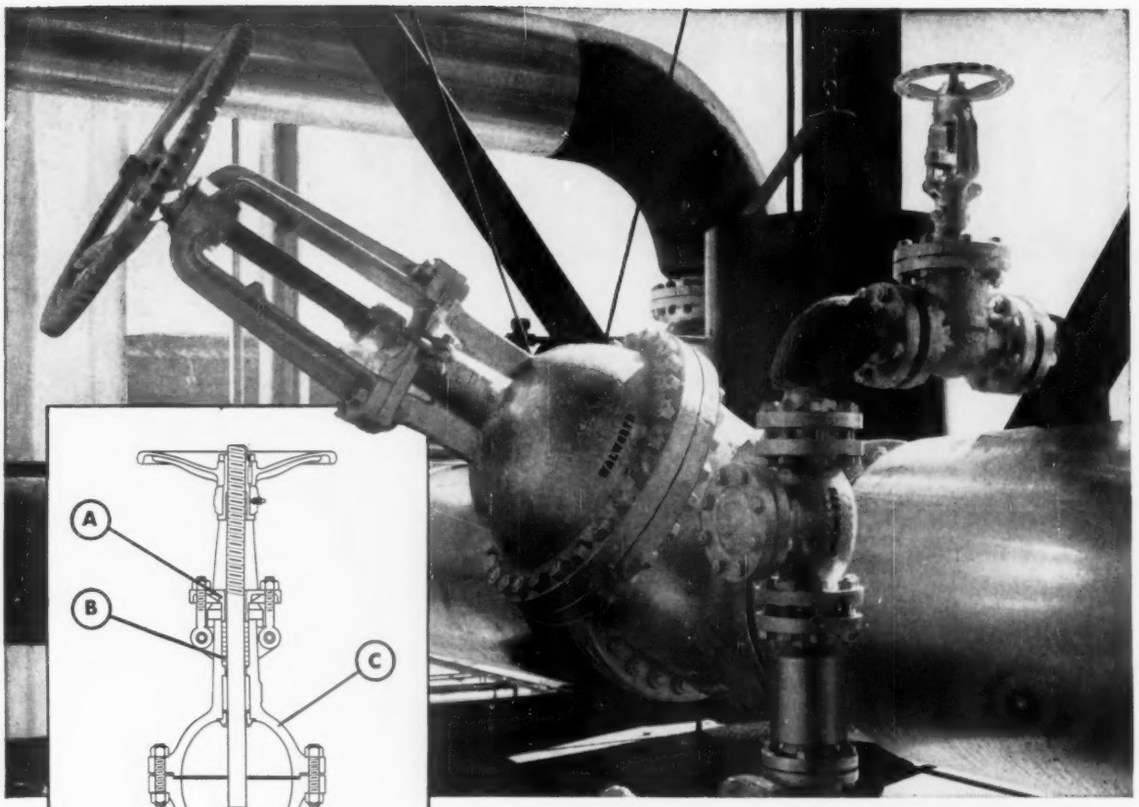
Operating results with this new tower design prove the Impco theory of external chemical mixing and separate internal circulation. By eliminating the top scraper and expensive launder construction, air-free pulp now goes directly to the washer, resulting in increased washing efficiency. With the emphasis on pulp quality, external mixing permits representative pulp sampling.

A single pump with minimum equipment simplifies this difficult job of chemical bleaching.



IMPROVED MACHINERY INC.
NASHUA · NEW HAMPSHIRE

In Canada, Sherbrooke Machineries Limited, Sherbrooke, Quebec



Walworth Series 150 and 300

CAST STEEL GATE VALVES OFFER YOU THESE FEATURES

for 'round-the-plant service

(A) GLANDS: Clearances between the gland and stuffing box, and gland and stem, are such that the stem cannot be scored even if the gland is pulled down unevenly.

(B) DEEP STUFFING BOXES: More than adequate in all sizes (2″ to 24″) to assure tightness and maximum packing life.

(C) BONNETS AND BODIES: Engineered to exceed the requirements of all applicable codes and standards. They are tough, durable, dependable.

(D) INTEGRAL GUIDE RIB FACES IN BODY: Machined to insure accurate centering of the gate.

(E) STURDY SEAT RINGS: Bottom-seated so that no recess exists at the back of the ring to cause turbulence, erosion and pressure drop.

(F) STREAMLINED PORTS: Permit unobstructed flow which results in minimum pressure drop and reduces the possibility of erosion.

Walworth Cast Steel Gate Valves can be furnished with either flanged ends or butt welding ends. Roller bearing yokes are available on the larger sizes. On valves 4 inches and larger, by-passes can be furnished. Walworth Cast Steel Gate, Globe and Check Valves from Series 150 to 2500, are available. For Series 600 and higher, we recommend Walworth Pressure Seal Cast Steel Valves. See your Walworth Distributor or write to Walworth for complete information.

WALWORTH

60 East 42nd Street, New York 17, New York

SUBSIDIARIES: ALLOY STEEL PRODUCTS CO. · CONOFLOW CORPORATION · M & H VALVE & FITTINGS CO. · SOUTHWEST FABRICATING & WELDING CO., INC. · WALWORTH COMPANY OF CANADA, LTD.

John W. Benninghofen says . . . .

"It took 100 YEARS of experience to make this BETTER Felt!"

" TO YOU, *this* Hamilton Felt may look like any other.
To us, it is an achievement of which my great grandfather, J. W. Benninghofen and his founding partner, Asa Shuler, would be very proud.

"Hamilton Felts are still made of as carefully selected wools, as carefully loomed, joined by hand and inspected as they were in those early days of proud craftsmanship. But, in addition, our present felts have many technical improvements for the faster removal of water and the making of better board and paper at lower cost than were ever dreamed of even a few years ago.

"If one of our present 300 proven styles won't solve your specific problem we will be happy to design a Hamilton Felt that will ! Just ask your Hamilton Felt Service Salesman —or write to us—today"

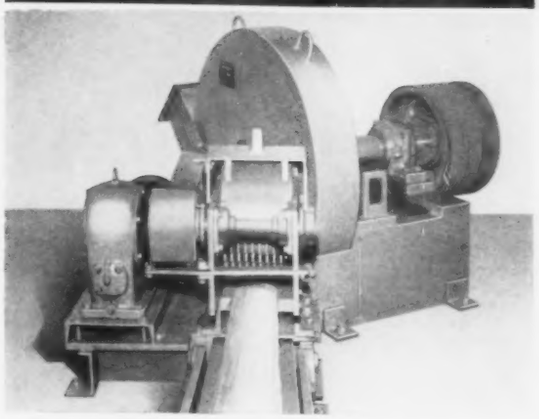
HAM FELTZ says:

"It's wonderful to be a hundred years old and as modern as Shuler & Benninghofen. That's why, after 5 generations, you can't beat Hamilton Felts."

YOU CAN'T BEAT
Hamilton
FELTS

SHULER & BENNINGHOFEN
HAMILTON, OHIO

Uniform, Clean-Cut Chips from "Waste" Wood



Carthage Slab Chipper

You get high-quality chips from slabs, edgings and small rounds, hard or soft wood, with a Carthage 39" Slab Chipper. With power feed synchronized with the cutting speed, this new chipper produces uniform, clean-cut chips which are exceptionally free from bruising.

Horizontal feed spout simplifies handling of long slabs and permits "automated" chipping when fed by the discharge conveyor from the Carthage Slab Barker.

Heavy feed fingers at the disc hold down and align short ends. Safety bar prevents entrance of over size material. Feed stops automatically if spout is accidentally jammed. Capacity 3 to 5 cords per hour.

Write for Bulletin 39-1

•

Complete the job with a Carthage Slab Barker and a Carthage-Dillon Chip Screen.

Ask Your Carthage Representative

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CARTHAGE
MACHINE COMPANY
CARTHAGE, NEW YORK

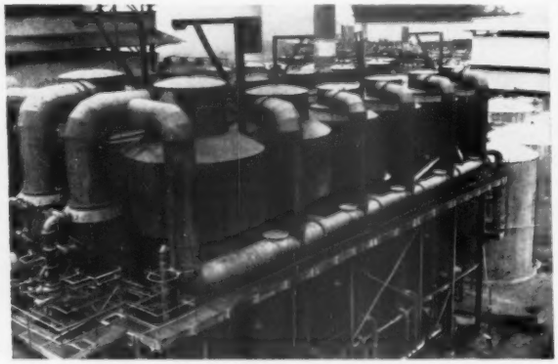
St. Regis Paper Company again selects

ERKOTE® Mastics

to protect equipment at newest Jacksonville Mill

When St. Regis Paper Company built its original mill at Jacksonville, Florida, Erkote Mastics were chosen to protect vital operating equipment. In the Company's present expansion program at Jacksonville, over 40,000 gallons of Erkote Mastics were used for corrosion protection, vapor-sealing and low-temperature insulation, a tribute to the dependability and quality of Erkote products.

When you select Erkote Mastics for weather-proofing, insulating or corrosion protection, you get a "one-responsibility" guarantee, because we produce our own Mastics and furnish our own trained crews to apply them.



Protection of thermal insulation on the two sets of evaporators was one of the many applications of Erkote 6X Weather Barrier Mastic.

Liquor storage tanks and settlers coated with Erkote 3X Insulating Mastic. Lime storage tanks protected with Erkote 2X Corrosion Resisting Mastic.

ERKOTE® TECHNICAL MASTICS

EARL PAINT CORPORATION
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Speaking of Pulpwood

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Did you know there is an Owen Grapple especially designed for the pulp and paper manufacturing field? The independent tine action . . . an exclusive Owen patent . . . affords greater grabs and larger log loads.

Write today and get convincing facts and special illustrated pulpwood bulletin . . . free upon request.

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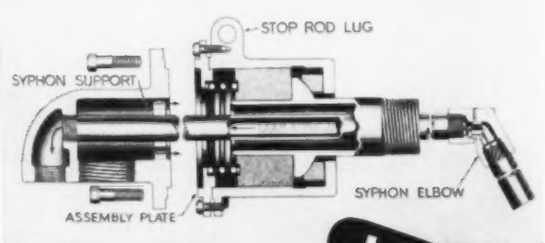
Rotary Joint Headquarters

★ Johnson started the whole idea. Today's *complete* line includes sizes from ¼" to 8" . . . self-supported, pipe-supported, or rod-supported . . . for stationary or rotating syphon pipe . . . all operating speeds and pressures . . . for paper machines, calenders, corrugators, waxers, embossers, roofing machines, printing presses.



Type SDP shown. Hinged syphon elbow replaces unwieldy curved syphon pipes with two straight pipes. Newest Johnson development is the Quick Release nipple. Write for Bulletin S-3001.

Johnson Rotary Pressure Joints

First in the Paper Industry

THE JOHNSON CORPORATION
849 Wood St., Three Rivers, Michigan

CLEAN PAPER

is impossible with old, worn Screen Plates. Change to new, fine-cut "Fitchburg" Screen Plates and be amazed at the instant improvement in QUALITY.

"FITCHBURG" *New Type—Duplex Slot*
FLAT PLATES
Stainless Steel and Rolled Bronze

Plain or Chromium Plated
BIRD SCREEN PLATES
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. . . are made with the utmost **PRECISION**

"Precision" manufacture is the key to a good Fourdrinier wire. Correct mesh, beat, proper relation of wire size in warp and shute, knuckle formation, uniformity of tension across wire and seaming must be absolutely correct for a good running wire. Sinclair's Fourdrinier wires are made with the precision of traditionally fine craftsmen.

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Write or Phone

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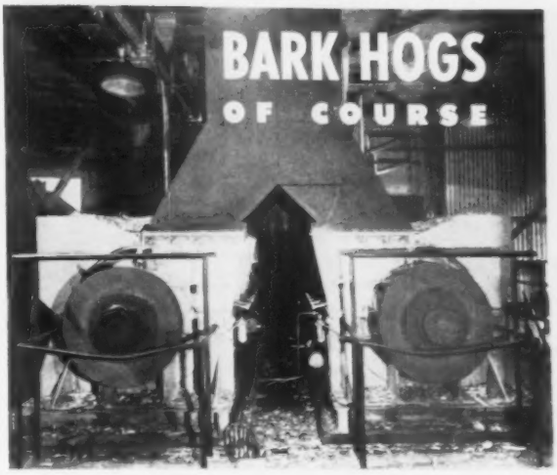
ST. REGIS PAPER COMPANY has

GRUENDLER



At present, each of these two Gruendler Bark Hogs is handling 60,000 lbs. per hour of material having a 50% moisture content.

Photo above illustrates a Greundler Lime Breaker at the St. Regis plant.

St. Regis, as so many other important pulp and paper producers throughout the North American Continent, have learned by experience that they get more production with less power and maintenance costs from Gruendler Bark Hogs. MacMillan Pulp Mills, for example, operate three of these "power house" Gruendler Bark Hogs in their magnificent plants on Vancouver Island (Port Alberni, Harmac and Crofton). The largest of these units has a capacity of 110 tons per hour.

GRUENDLER BUILDS A WIDE RANGE OF SPECIAL PULP AND PAPER MACHINERY.

Write for Catalog #900 illustrating and describing Turbo Refiners and Pulpers, Bark Hogs, Wood Hogs, Paper Shredders, Bale Breakers, Wood Flour Grinders, Knot Shredders and Re-Chippers, Rag Shredders, Impact Crushers, Hot Lime Crushers, Straw Shredders, De-Pithers, Disc Chippers and Knife Wood Hogs.

Gruendler
CRUSHER AND PULVERIZER COMPANY
2915 No. Market St. • St. Louis 6, Mo. • USA

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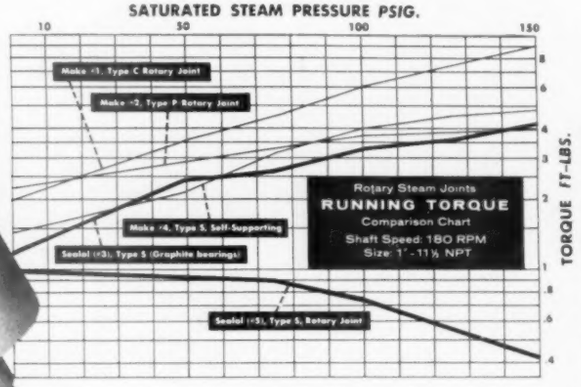
In SEALOL Rotary Joints . . .
LOW TORQUE MEANS LONGER LIFE!

The balancing of pressures acting on the working parts of Sealol Rotary Joints is a *totally new concept* which reduces friction to an absolute minimum . . . translated into user benefits, this means maximum performance, longer life, and minimum maintenance. Compare the outstanding performance of Sealol Rotary Joints, and see how they compare with other rotary joints on the market.



REMEMBER that when you're talking TORQUE, you're talking money . . . *your* money! When it's LOW TORQUE you want in your rotary joints, you're talking SEALOL. Request Bulletin 14 and get complete data on these leak-proof, low torque, long-lived Sealol Rotary Joints . . . whose balanced-pressure design works equally well on vapor, liquid, or gas applications.

SEALOL SEALOL CORP
363 Post Road, Providence 5, R. I.

Don't overlook these ways to cut production costs!

OK BATTLE AXE CHIPPER KNIVES

. . . always deliver maximum production of uniform cookable chips.

Also available: OK Hog Knives
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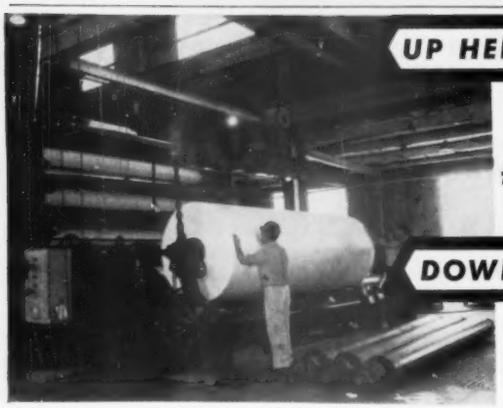

UP HERE, there's **A EUCLID CRANE**

Placing Cores on the Paper Winder

DOWN HERE

This essential paper mill operation is made easier and accomplished quicker with the aid of a precision control Euclid Crane.

Directly behind the large sheet roll of paper are three more cores ready for placement on the winder.

Paper mill cranes are a specialty of ours. We can build them to meet your general or specific handling needs. For stand-by or continuous service. Any capacity, any control system.

That's why an ever increasing number of paper mills are specifying EUCLIDS.

for details write **THE EUCLID CRANE & HOIST CO.**
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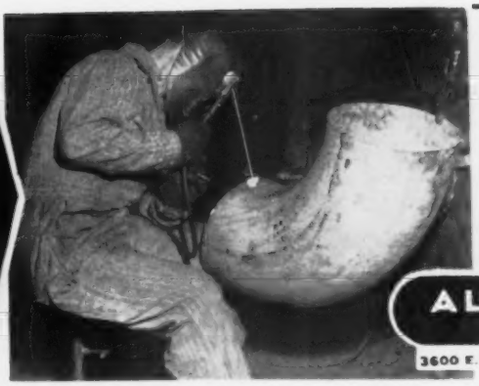
Another Operation in the Production of 'ALASKAN'

Smooth Flo

Stainless Steel ELBOWS



We illustrate positioned welding on a 14" O.D. 90 degree die-formed elbow, using "McKay" Titania coated stainless steel electrodes. This electrode selection and welding technique results in 100% penetration and perfect appearance.

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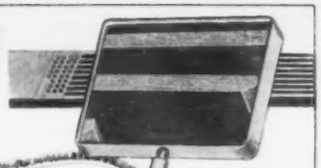

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GUARANTEED PERFORMANCE

Capacity: 32" to 108"
Wheels: 10" to 14" Dia.
Table Drive — Timing Belt with Elec. Reversing Motor
Motor — 3 H.P.

Delivers the finest in knife Edges and high production at low cost

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Capacity: 32" to 196"
Wheels: 14"—16"—20" Dia.
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Table Drives: Mechanical—Electric—Hydraulic
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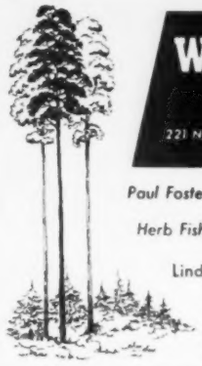

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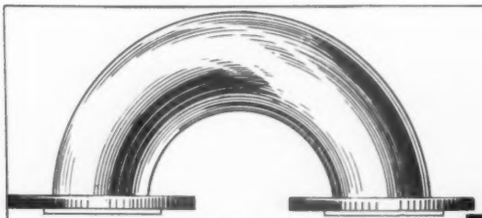

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Need two men with kraft mill experience as group leaders in large West Coast mill. Excellent opportunity in quality control, production and research. Apply Box 312, Pulp & Paper, 370 Lexington Avenue, New York 17, N.Y.

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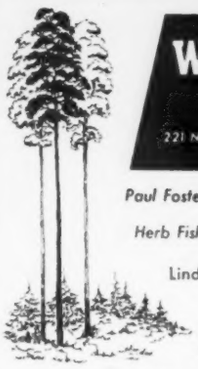

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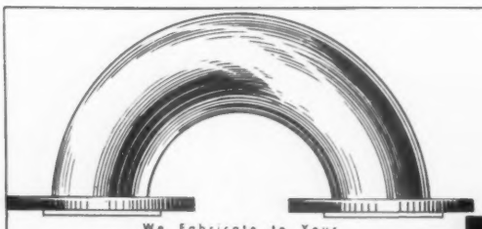

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ADVERTISERS' INDEX

Adell Chemical Co. 84
Alaskan Copper Works 171
Louis Allis Co. 92
Alloy Steel Products Co. 159
American Cyanamid Co. 34, 35
American Hoist and Derrick Co. ... 127
American Manufacturing Co. 42
American Potash and Chemical Corp. 88
Anheuser-Busch, Inc. 147
Appleton Machine Co. 151
Appleton Wood Products 171
Asten-Hill Mfg. Co. . inside back cover

Babcock & Wilcox Co. 32
Badger Division, Warner & Swasey Co. 147
Bailey Meter Co. 38
Baltimore & Ohio Railroad 23
Bauer Bros. Co. 12
Becco Chemical Div., Food Machinery & Chemical Corp. 99
Beloit Iron Works 85, 86
Bird Machine Co. 2
John W. Bolton & Sons, Inc. 4
Buckeye Cellulose Corp. 106
Buffalo Forge Co. 29

Carthage Machine Co. 167
Caterpillar Tractor Co. 125
Chain Belt Co. 20
Chemipulp Process Inc. 173
Chicago Bridge & Iron Co. 94
Ciba Company, Inc. 155
Clark-Aiken Co. 105
Classified Advertising 172-173
Clinton Corn Processing Co. 30
Combustion Engineering 121
Cooper Alloy Corp. 28
Crane Company 89

DeZurik Corp. 36
Diamond Power Specialty Corp. ... 22
Dominion Engineering Co., Ltd. ... 25
Dorr-Oliver, Inc. 44-45
Draper Bros. Co. 172
Dryden Paper Co., Ltd. 91
J. H. Dupasquier 156

E. I. du Pont de Nemours 116-117
Earl Paint Corp. 168
Eastwood-Nealley Corp. 150
Eaton Mfg. Co. 118
Ebasco Services, Inc. 172
Elwell-Parker Electric Co. 31
English China Clays Sales Corp. ... 171
Euclid Crane & Hoist Co. 170

Fabri-Valve Co. of America 93
Falk Corp. 37
Farris Flexible Valve Corp. ... 102-103
Felker Bros. Mfg. Co. 172
Fischer and Porter Co. 24
Fitchburg Screen Plate Co. 169
Fuller Co. 164

General Chemical Div., General Chemical & Dye Corp. 43
General Dyestuff Corp. 16
General Electric Co. 108-109
Glidden Co. 26
Goslin-Birmingham Mfg. Co. 143
Gottesman & Co., Inc. 6
Goulds Pumps Inc. 114
Griffith Rubber Mills 123
Gruendler Crusher & Pulverizer Co. 169

Hanchett Mfg. Co. 171
Hills McCanna Co. 33
Homelite Corp. 136
Horton Mfg. Co. 153
Hotel Holiday Inn 152
Frank G. Hough Co. 139
E. F. Houghton & Co. 122
Hubinger Co. 107
F. C. Huyck & Sons 153

Improved Machinery Inc. 165
Infilco Inc. 98
International Harvester Co. 135

G. D. Jenssen Co. Inc. 171
Johnson Corp. 168
E. D. Jones & Sons Co. 39

Knox Woolen Co. 160

Samuel M. Langston Co. 112
Lawson Co. 14
Link-Belt Co. 27
Lockport Felt Co. 90

Manchester Machine Co. 97
Mason-Neilan Div. of Worthington Corp. 48-49
Merrick Scale Mfg. Co. 160
Midwest Piping Co. 47
Monsanto Chemical Co. 19
Moore & White Co. 170
Morden Machines Co. 115
Mount Hope Machinery Co. 158

Nash Engineering Co. 145
National Aluminate Corp. 119
National Aniline Div., Allied Chemical & Dye Corp. 51
Nopco Chemical Co. 46
Northeastern Paper Sales Inc. 91
Northwest Copper Works, Inc. 144
Norton Co. 21

Ohio Knife Co. 170
Oliver Corp. 126
Owen Bucket Co. 168

Pacific Gear & Tool Works 113
Patton Manufacturing Co., Inc. 17
Pennsalt of Washington Div., Pennsalt Chemicals Corp. 104
Perkins-Goodwin Co. ..... back cover
Philadelphia Gear Works Inc. 163
Puget Sound Pulp & Timber Co. .. 124
Pulp Bleaching Co. 172

Rader Pneumatics, Inc. 148
Reliance Electric & Engineering Co. 140
J. E. Rhoads & Sons 10
Rice Barton Corp. 1
Roots-Connersville Blower 50
J. O. Ross Engineering Corp. 53
Ross Midwest Fulton Corp. 152

Scapa Dryers, Inc. 8
Sealol Corp. 170
Shafer Bearing Div. 20
Shell Chemical Corp. 95
Shuler & Benninghofen 167
Simonds Saw and Steel Co. 87
Sinclair Co. 169
F. L. Smidth & Co. 120
Ray Smythe Co. 160
Solvay Process Div., Allied Chemical & Dye Corp. .. inside front cover
Sonoco Products Co. 110
South Western Gear Works 113
Sprout, Waldron & Co., Inc. 157
A. E. Staley Mfg. Co. 96
Stebbins Engineering & Mfg. Co. .. 161
Sumner Iron Works 137
Swenson Evaporator Div. 15

Texas Gulf Sulphur Co. 111
Thiele Kaolin Co. 100
Truscon Laboratories 149

United States Borax & Chemical Corp. Pacific Coast Borax Co. Div. 138
United States Rubber Co. 40-41

Valley Iron Works 101
R. T. Vanderbilt Co. 54

Walworth Co. 166
Warner & Swasey Co.—Badger Div. 147
Jervis B. Webb Co. 146
West End Chemical Co. 162
Western Gear Corp. 113
Weyerhaeuser Timber Co. 52
Whiting Corp. 15
Williams-Gray 172

CONSULTANTS & ENGINEERS 174-75

Calkin & Bayley, Inc.
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The LAST WORD PULP & PAPER EDITORS' PAGE

"Closed Borders: Keep Out"

Washington state's director of fisheries, Milo Moore, has painted a big "Keep Out" sign and asks the state's pollution control commission to post it on all state borders.

In his concern to throw a protective curtain around the state's valuable fish and oyster interests, he proposed adoption of a set of pollution tolerances which if adopted, even in principle, would end the state's pulp and paper payroll. More important—they would shut down much of the rest of industry and stop the presently accepted discharge of effluents into Washington waters.

To many already established industries in the state, Mr. Moore's ultimatum would mean more than "Keep Out." It would mean "Get Out."

The heart of his Jan. 7 proposal prescribes that no organic or inorganic waste or debris be released into the waters that will increase the turbidity of the natural waters; that sulfite liquor concentrations shall not exceed 3 ppm beyond a half-mile from point of discharge; that no waste be discharged that will either directly or indirectly reduce dissolved oxygen below 5 ppm beyond a quarter-mile radius from point of discharge.

Only four months earlier, in Sept. 1957, his own department released a study titled "*Summary of Investigations and Available Information Relative to Pollution Resulting From Sulfite Pulp Mills.*" It listed department laboratory tests finding salmon tolerances ranging between 530 and 1230 ppm of spent sulfite liquor; herring tolerances between 599 and 1022 ppm; marine organism tolerances ranging between 130 and 600 ppm; and crab larvae and shrimp considerably more than young salmon.

The report flatly stated: "Sulfite waste liquor is suspected as being a possible cause of mortality, or of poor condition of the oysters, but there is no known valid experimental evidence which will pinpoint its effect in concentrations now observed." It also stated: "Pacific oyster mortalities have been examined in a great many instances during the past eight years. We can find no definite or positive relationship between the presence of sulfite waste liquor and the occurrence of Pacific oyster mortality, because heavy mortalities have occurred at times in areas completely free from sulfite waste liquor as well as in areas where sulfite waste liquor is present."

With apparent total disregard for these findings, then, fisheries department biologists presented, in a series of Moore-mustered comments to support his January proposal, such profound observations as . . . "spent waste liquor should not exist in public waters in detectable amounts . . ."; . . . "it would obviously be safer to have no measurable sulfite waste liquor whatsoever or 1 ppm as the permissible level."

Last year, the federal forest service and public health service reported that three new pulp mills could be built—pollution free—on the Snake river, an upstream tributary of Washington's Columbia river. Last year, too, the state of Oregon issued its Sandwell report encouraging pulp and paper mill development in nine suitable areas of that state. In January, Washington's governor held a conference to ask industry what could be done about his state's growing unemployment problems.

We think the answer to the Washington governor's question may well rest, at least in part, within his own administrative control, and by indicating a willingness to set safe but reasonable standards.

Closer Ties Made in Montreal

Never before in the history of the annual Canadian Pulp and Paper Association's midwinter convention in Montreal was there so much evidence of closer and more abundant ties between the American and Canadian companies as at the recently concluded 44th annual meeting. Where there were misunderstandings, there were many opportunities to clear the air with face-to-face talks.

Newsprint did not seem to be as great a concern as in recent years, probably because the future is pretty well marked out for that grade, and everyone knows there is going to be plenty. In woodpulp circles, there was considerable concern among the Canadians, especially because most of the new mills, seeking to break into the markets, are in Canada. In woodpulp talks, long strides were taken to clarify problems, remove doubts and worries, and squelch false rumors.

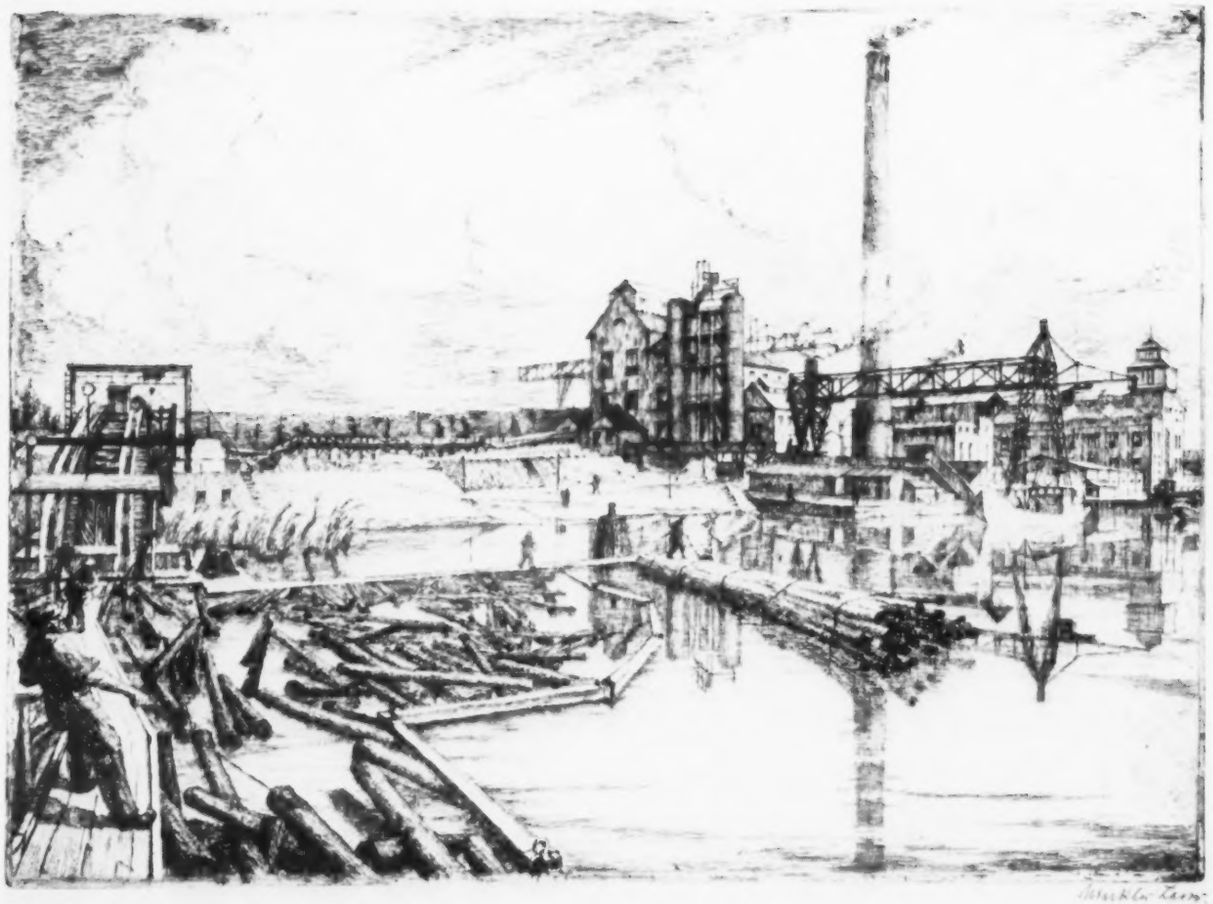
David L. Luke, retiring president of American Paper and Pulp Association and head of West Virginia Pulp and Paper Co., called upon Canadians at their annual luncheon to "lend your talents to world leadership of this industry." In closed meetings, too, Canadian, American and British leaders called for high level, long-viewing leadership and statesmanship. With this kind of leadership, it was generally agreed that prices will hold and that there will be no serious dumping possible on any world markets. American and Canadian suppliers so strongly dominate the American markets, that no lesser supplier could rock the boat very dangerously.

The Canadian technical meeting at Montreal in late January maintained its remarkable record of being the favored site for unveiling new processes. We have never heard so many truly pioneering technical papers, or so many really new practical developments come to light at any other technical meetings in recent years anywhere on the North American continent. Meeting in late January, Montreal has a jump of a few weeks on New York's annual TAPPI conclave. But in recent years many new processes or new techniques seem to be Canadian developments.

That FBI Investigation of Newsprint

PULP & PAPER's editor didn't hear much being said about newsprint in Montreal. Except that one Canadian remarked wryly that he "saw where Emanuel Celler, the New York Congressman, is going to run for president." We assured him that Mr. Celler, arch persecutor and prosecutor of the newsprint industry, would be unlikely to carry any precincts outside of Brooklyn.

This reminds us that the exclusive report published in PULP & PAPER in the December issue last year, disclosing that the Federal Bureau of Investigation, Washington, D.C., is conducting a quiet investigation of an alleged newsprint "monopoly" has been confirmed. The FBI men are making the rounds, as PULP & PAPER first reported, asking American newsprint marketers and Americans affiliated with Canadian firms questions about pricing policies. It will probably lead to another report to Congress. Meanwhile, the suggestion for an inquiry into newspapers' complaints of high costs and low profits is ignored. The FBI action is inspired by "the Cellers" who want to make a hit with the newspapers and win their political support.



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